BY ORDER OF THE COMMANDER
ROBINS AIR FORCE BASE

ROBINS AIR FORCE BASE
INSTRUCTION 32-2001

6 JUNE 2016

Civil Engineering

FIRE PROTECTION OPERATIONS AND FIRE PREVENTION PROGRAM

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

ACCESSIBILITY: Publications and forms are available on the publishing website at **www.e-Publishing.af.mil** for downloading or ordering

RELEASABILITY: There are no releasability restrictions on this publication

---

OPR: 778 CES/CEXFP

Certified by: 778 CES/CL
(Forest Johnson)

Supersedes: ROBINSAFBI 32-2001, 17 December 2010

Pages: 69

This instruction aligns with AFPD 32-20, *Fire Emergency Services*, and supplements AFI 32-2001, *Fire Emergency Services (FES) Program.* It establishes policies, practices, and procedures for a comprehensive, base-level fire protection program at Robins Air Force Base (RAFB). It applies to all personnel assigned or attached to units at RAFB, to include all tenant organizations. It assigns responsibilities for fire prevention and protection and establishes a recognized standard practice for safeguarding life and property from the effects of fire. Failure to prevent fires could seriously hamper mission accomplishment here and at other bases worldwide. Therefore, it is essential that all personnel, military and civilian, maintain constant vigilance to prevent needless loss of life and property to fire. This instruction is consistent with Occupational Safety and Health (OSHA) standards, Air Force Safety and Health standards, National Fire Protection Association (NFPA) codes and standards, Unified Facilities Criteria (UFC) 3-600-01, *Fire Protection Engineering for Facilities,* Engineering Technical Letters (ETL), and the International Building Code (IBC), as applicable. Standards for unique conditions for which no fire prevention criteria have been developed or published will be developed according to the recommendation of the RAFB Fire Emergency Services (FES). Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR, 778 CES/CEXF) using Air Force (AF) Form 847, *Recommendation for Change of Publication;* route AF Forms 847 from the field through the appropriate functional' s chain of command. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, Management of Records, and disposed of in accordance with Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) located at **https://www.my.af.mil/afrims/afrims/afrims/rims.cfm**.

See Attachment 1 for a glossary of references and supporting information. This publication may be supplemented at any level, but all direct supplements must be routed to the OPR of this publication for coordination prior to certification and approval. Requests for waivers must come through the chain of command from the commander of the office seeking relief from compliance. Waiver requests must be submitted to the OPR; waiver authority has not been delegated. The waiver approval authority for all compliance items within this publication are at Wing Level (Tier T-3, at a minimum) and may require MAJCOM level (Tier-2) or Air Force Civil Engineer Center (AFCEC, Tier-1) level depending on the specifics of the requested waiver.

SUMMARY OF CHANGES

This publication enhances and streamlines the previous guidance, and has been substantially revised and must be completely reviewed.

Chapter 1— ADMINISTRATION AND ENFORCEMENT **6**

1.1. Purpose: 6

1.2. Authority: 6

1.3. Objective: 6

1.4. Fire Prevention and Protection Program: 6

1.5. Fire Prevention and Public Education: 7

1.6. Fire Protection Engineering Program: 7

1.7. Construction Requirements, Alterations, Modifications, and Self Help Projects: .. 7

1.8. Change of Occupancy: 7

1.9. Notification of Public Gatherings: 8

Chapter 2— RESPONSIBILITIES **9**

2.1. Organizational Commanders: 9

2.2. Facility Managers: 9

2.3. Supervisors and Employees: 10

2.4. Contractors: 10

2.5. Security Forces: 10

Chapter 3— FIRE SAFETY DEFINCIENCIES **11**

3.1. Fire Safety Deficiency (FSD): 11

3.2. FSD Correction/Mitigation Process: 11

Figure 3.1. FSD I/II Flow Process 12

Chapter 4— EMERGENCIES PROCEDURES AND EQUIPMENT **13**

4.1. Procedures in Case of Fire: 13

4.2. Driver Operators Responsibilities: 13

4.3. Fire Extinguishers: 13

4.4. Tampering with Fire Safety Equipment: 14

4.5. Reports and Records: 15

Chapter 5— GENERAL FIRE SAFETY **16**

5.1. Fire Hydrants: 16

5.2. Fire Lanes/Fire Access Ways: 16

5.3. Evacuation Plans: 16

5.4. Fire/Evacuation Drills: 17

5.5. Fire Doors: 17

5.6. Fire Protection Equipment: 17

5.7. Smoking: 18

5.8. Electrical Safety: 18

5.9. Cooking Appliances: 19

5.10. Heating Appliances: 20

5.11. Open Fires/Barbecues/Fireworks: 20

5.12. Decorations: 21

5.13. Parking of Vehicles: 21

5.14. Storage and Handling: 21

5.15. Storage in Mechanical and Boiler Rooms: 21

5.16. Garbage: 21

5.17. Vacant Buildings: 22

5.18. Exits: 22

5.19. Exit Signs/Emergency Lighting: 22

5.20. Means of Locking and Securing Exits: 23

5.21. Travel Distance Limitations: 23

Chapter 6— HAZARDOUS MATERIALS **24**

6.1. Explosives, Blasting Agents and Pyrotechnics: 24

6.2. Flammable and Combustible Liquids: 26

Table 6.1. Flammable and Combustible Classes. 26

Table 6.2. Maximum Allowable Quantities per Control Area. 28

6.3. Flammable Solid: 31

6.4. Compressed Gases and Cryogenic Liquids: 34

Table 6.3. Separation of Gas Cylinders, Containers and Tanks by Hazard Class. 36

Table 6.4. Maximum Allowable Quantity (MAQ) of Hazardous Materials per Control Area 37

6.5. Corrosives and Oxidizers: 41

6.6. Pesticides and Poisons: 45

6.7. Radioactive Materials: 49

6.8. Hazardous Cargo: 50

6.9. Petroleum, Oil and Lubricants (POL) Storage Areas: 51

6.10. Miscellaneous Requirements: 52

Chapter 7— SPECIAL OPERATIONS **55**

7.1. Airfield Operations: 55

7.2. Services Station/Fueling Operations: 55

7.3. Welding, Cutting, Brazing and Grinding. 55

7.4. Confined Spaces: 56

7.5. Painting Operations: 56

7.6. Tar Pots and Kettles: 57

7.7. Model Rockets: 57

7.8. Tents/Canopies: 57

Chapter 8— FIRE SAFETY IN OCCUPANCIES **58**

8.1. Public Assembly: 58

8.2. Educational/Daycare Facilities: 58

8.3. Warehouses: 58

8.4. Battery Shops: 59

8.5. Museums: 59

Attachment 1— GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION **60**

Attachment 2— ROBINS AIR FORCE BASE FIRE PREVENTION FACILITY MANAGER MONTHLY CHECKLIST **67**

Attachment 3— PUBLIC ASSEMBLY MANAGERS CLOSING CHECKLIST **69**

Chapter 1

ADMINISTRATION AND ENFORCEMENT

1.1. Purpose:

1.1.1. This instruction defines policies and responsibilities and sets standards and procedures for fire prevention and fire protection from a facility engineering perspective.

1.1.2. This instruction establishes minimum fire prevention measures for complete fire protection services to prevent loss of life or personal injuries and reduce property loss to the lowest attainable level consistent with mission, sound engineering, and economic principles.

1.2. Authority:

1.2.1. This program is directed IAW AFI 32-2001, *The Fire Protection Operations and Fire Prevention Program*.

1.2.2. The RAFB Fire Emergency Services (FES) Flight is authorized to inspect at reasonable times, any building or premises for dangerous or hazardous conditions or materials as set forth in this standard. The fire department will inform any entity failing to comply with this standard that they are in violation of the directives of this document. All violations will be recorded in writing and the reference standard noted.

1.2.3. Fire protection waivers, exceptions and alterations: The fire department is not authorized to approve waivers, exceptions or alterations. Waivers, exceptions, and alterations concerning fire protection will be made in accordance with AFI 32-2001 and AFI 32-10141, *Planning and Programming Fire Safety Deficiency Correction Projects.*

1.3. Objective:

1.3.1. The objectives of the Fire Prevention Program are to prevent fires, facilitate early intervention of fires that occur, and ensure the safety of exposed personnel during fires. These objectives are accomplished through four program elements: FES facility plan reviews, fire prevention inspections, code enforcement and fire safety education.

1.4. Fire Prevention and Protection Program:

1.4.1. Every Air Force activity will have a fire prevention and fire protection program based on its size, mission, and available resources.

1.4.2. The Base Fire Marshal (78 CEG/CL) is responsible to the Installation Commander for fire prevention and fire protection at this installation and other activities where facilities engineering support is provided. Additionally, the Base Fire Marshal is responsible for the technical development and execution of an effective fire prevention and fire protection program.

1.4.3. Fire Inspection Program: IAW AFI 32-2001, Fire Emergency Services Program, the fire emergency services flight performs facility inspections and advise unit commanders, facility managers, and supervisors of fire hazards and fire safety deficiencies noted in their facilities. The primary responsibility for correcting identified hazards or deficiencies rests with the unit commander executed by the facility/building manager of the unit or facility inspected.

1.4.4. Per AFI 32-2001, frequency and numbers of installation facilities requiring inspection are determined by the base fire chief and inspected by the FES inspection section.

1.5. Fire Prevention and Public Education:

1.5.1. The Fire Prevention Section is available to present fire prevention briefings and hands-on portable extinguisher training. Call the fire prevention section at DSN 468-2145 to request this training.

1.5.2. The Fire Prevention Section promotes fire safety and National Fire Prevention Week held during the week of 9 October each year.

1.5.3. Sparky, the Fire Dog, and Smokey Bear are available upon request throughout the year. Contact the fire prevention section at DSN 468-2145.

1.6. Fire Protection Engineering Program:

1.6.1. All facilities and structures on base shall be designed with the appropriate fire protection/safety features. Prior to new construction of any facility, regardless of real property status, the Fire Protection Section shall review plans to ensure all required features are present and local emergency response elements are incorporated (i.e., accessibility to facility, location of fire hydrants, etc.).

1.6.2. All construction, alterations, modifications, renovations and self-help projects shall be coordinated with the 78th Civil Engineering Group and the base Fire Protection Section DSN 468-2145. All work must be documented on an AF Form 332**,** Base Civil Engineer Work Request, and submitted through proper channels**.**

1.7. Construction Requirements, Alterations, Modifications, and Self Help Projects:

1.7.1. Ensure all construction at RAFB comply with the provisions of all applicable ETL, NFPA Standards and requirements within the UFC Design 3-600-01. This applies to new construction, reconstruction, alterations, modifications, self-help projects, and maintenance or repair of existing facilities.

1.7.2. Buildings or portions of buildings may be occupied during construction, repair, alterations, or additions only if all means of egress and all fire protection features are in place and continuously maintained.

1.7.3. The installation Fire Protection Section shall be notified in writing of all pre-construction conferences, pre-final and final facility inspections.

1.8. Change of Occupancy:

1.8.1. If a change of occupancy or portion of occupancy is required in an existing or new facility, this change shall be permitted only if such building or structure conforms to the requirements of the UFC 3-600-01, applying to the new construction or for the proposed new use.

1.8.2. An AF 332 shall be submitted to 78 CES with coordination by 78 CEG/CENPL and 778 CES/CEXFP, for review and guidance pertaining to the requested change.

1.9. Notification of Public Gatherings:

1.9.1. Organizations shall notify the base Fire Prevention Section at least one week prior to any assembly that will be conducted in a facility not specifically designed as a place of assembly. This is to ensure that all requirements outlined in NFPA Standards, *101 Life Safety Code* are met and events are conducted safely.

1.9.2. Notify FES of all major social events when temporary decorations or unusual arrangements exits.

1.9.3. The following announcement shall be read by the Facility Manager or other responsible parties at all public assembly gatherings held indoors, prior to the start of any function: "Exits are located in the places I am now indicating. In the event of a fire, alarm activation or other emergency necessitating evacuation, please move in a calm and orderly manner to the nearest exit."

Chapter 2

RESPONSIBILITIES

2.1. Organizational Commanders:

2.1.1. Commander's role: The most critical ingredient in an effective fire prevention and fire protection program is the commander's awareness, involvement and active participation.

2.1.2. Organizational commanders, directors, and chiefs of principal organizations are responsible for the fire prevention program in their areas of responsibility. Personnel who are appointed by organizational commanders or other responsible entities as Facility Managers shall complete the Facility Managers' annual training.

2.1.3. Functional managers must sign any AF Form 1487, Fire Prevention Visit Reports, issued against facilities and operations under their control and identified uncorrected hazards or FSDs.

2.1.4. Ensure that all assigned personnel are knowledgeable concerning fire reporting procedures, personnel evacuation, fire prevention measures, and fire extinguisher use.

2.2. Facility Managers:

2.2.1. Primary and alternate Facility Managers/supervisors will be required to complete the Facility Managers' training upon the initial appointment and annually thereafter. This training is available by contacting 78 CES/CEOER.

2.2.2. Facility Managers/supervisors shall ensure emergency contact names and phone numbers are kept up to date with 78 CES/CEOER (Customer Service).

2.2.3. Facility Managers shall ensure all buildings are numbered IAW UFC 3-120-01 and the base facility standard.

2.2.4. Facility Managers shall accompany the fire inspectors during fire inspections. The inspector shall notify the Facility Manager on all fire hazards or deficiencies noted and the corrective action required via AF Form 1487, *Fire Prevention Visit Report*. Instructions for completing the form are on the reverse side of the AF Form 1487, which must be returned IAW the suspense date assigned. Interim corrective actions must be taken on all identified items that cannot be corrected by the suspense date.

2.2.5. Ensure all facility fire extinguishers are maintained in a ready-to-use condition, are inspected monthly for serviceability, and annual fire extinguisher maintenance is performed. Documentation shall be kept on hand for the fire inspector to review.

2.2.6. Facility Managers shall maintain a fire prevention monthly checklist. RAFBI 32-2001, Attachment 2, will be the minimum standard for monthly fire prevention checks. This folder will be on file for the fire inspectors' review.

2.2.6.1. Facility Managers are responsible for correcting deficiencies/hazards noted during a fire inspection. Items that cannot be corrected immediately must be submitted via AF Form 332, *Base Civil Engineer Work Request*. Facility Managers are also responsible for performing follow-up on submitted AF Form 332's.

2.3. Supervisors and Employees:

2.3.1. Supervisors and employees are responsible for ensuring their work place is free of fire hazards. Eliminate all hazards and deficiencies immediately, or report to a level where corrective action can be taken.

2.3.2. The supervisor of the operation must take prompt action to reduce or eliminate the hazard, or cease operations and withdraw exposed personnel to safety where hazardous conditions pose an imminent threat to life or property.

2.4. Contractors:

2.4.1. All contractors performing work on properties under jurisdiction of this installation shall be responsible for fire safety and compliance with all applicable OSHA, State, Air Force, AFMC, and base instructions and directives.

2.4.2. The Prime Contractor shall attend a contractor's briefing on fire safety prior to any work.

2.4.3. The Prime Contractor shall ensure that all personnel and sub-contractors under their control are briefed on fire prevention practices IAW this instruction.

2.5. Security Forces:

2.5.1. The Base Defense Operations Center (BDCOC) or Law Enforcement Desk (LED) shall dispatch patrols to the fire scene to provide traffic control, security of government property, and assist the Fire Department when requested by the installation Fire Chief or his authorized representatives.

Chapter 3

FIRE SAFETY DEFINCIENCIES

3.1. Fire Safety Deficiency (FSD):

3.1.1. A condition which reduces fire safety below an acceptable level, including noncompliance with standards, but by itself cannot cause a fire to occur.

3.1.2. FSD I includes missing fire protection systems or missing NFPA 101 features in any building or process. Any facility FSD which results from a failure to comply with AFI-32-10141,3.4.1 is considered an FSD I.

3.1.3. FSD II includes deficiencies in existing fire protection systems or features in any building or process not covered by 3.2.1. Any existing fire protection system/feature identified in UFC 3-600-02, *O&M: Inspection, Testing, and Maintenance of Fire Protection Systems,* which is out of service or impaired so as to prevent automatic or manual (manual is applicable only if the system/feature is only operated by manual activation) response to a fire event for more than 72 hours shall be considered an FSD II.

3.1.4. FSD III. All other FSDs not covered by paragraphs 3.2.1 and 3.2.2 are classified FSD IIIs.

3.1.5. FSD Code Decision Matrix. Attachment 3 is a decision matrix to correctly classify FSDs for various situations.

3.2. FSD Correction/Mitigation Process:

3.2.1. FSD Identified (either by FES or other entities).

3.2.2. FSD is identified and determined to be an FSD I or FSD II.

3.2.3. FES issues a 1487 (Fire Prevention Visit Report) and provides an Interim Corrective Action Plan (ICAP) to user/owner (only good for 72 hours after occurrence/discovery) of the facility.

3.2.4. ICAP includes Fire Watch Checklist and Fire Safety Deficiency Signs for use in the affected area(s).

3.2.5. Signed by issuing Fire Emergency Services representative, area supervisor and area functional manager.

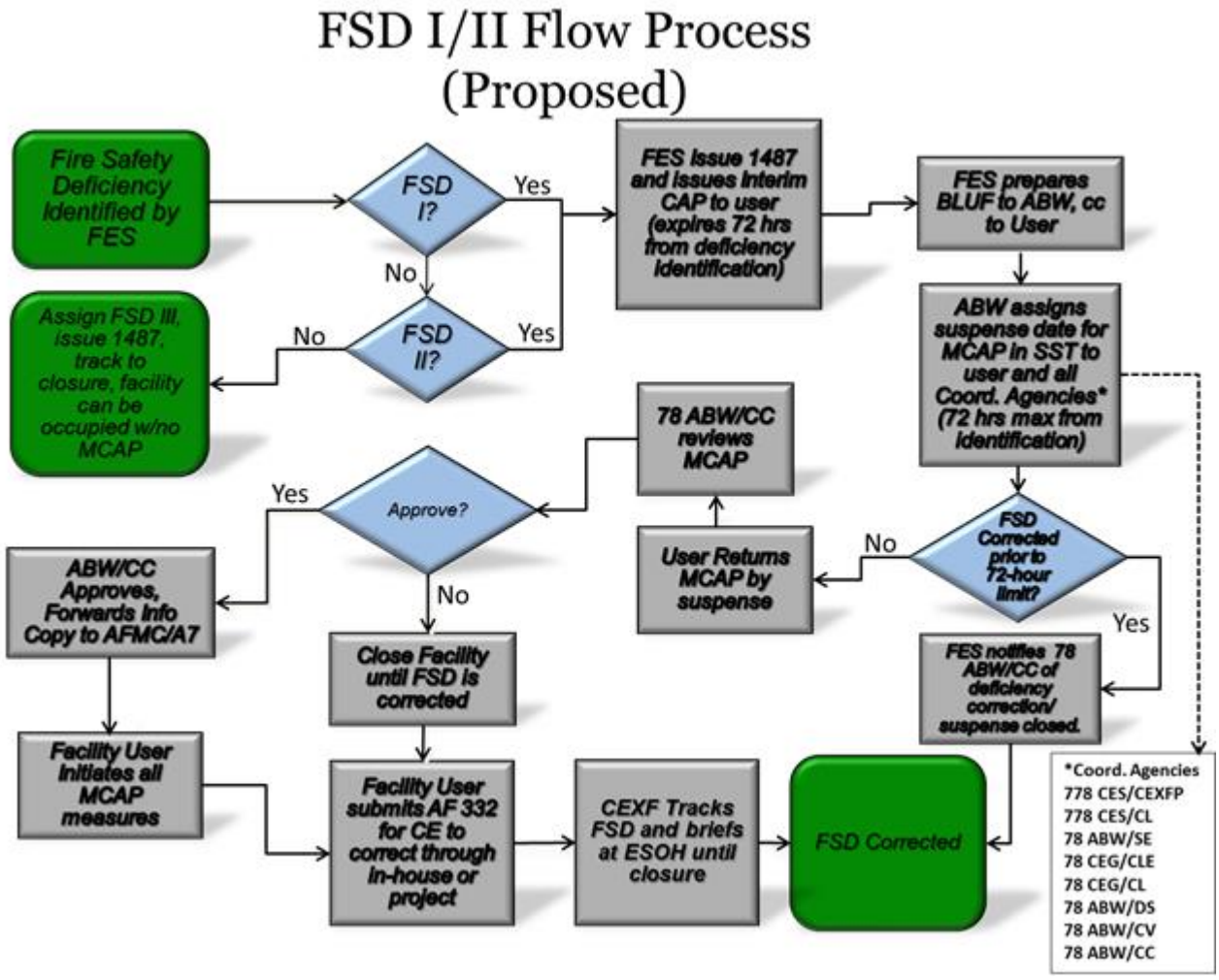
3.2.6. Outage is recorded on the FES Fire Protection Systems Impairment Tracker.

3.2.7. 778 CES/CEXFP (Fire Prevention) prepares the eSSS and sends an email package to 78 ABW workflow for processing.

3.2.8. Affected facility performs actions IAW the established Mitigation-Corrective Action Plan (M-CAP) and FSD is corrected or waived by higher authority.

3.2.9. 778 CES/CEXFP tracks the FSD, provides monthly status updates to 78 ABW/CV and presents updates semi-annually at the Environmental, Safety and Occupational Health (ESOH) council meetings until closure.

Figure 3.1. FSD I/II Flow Process.



Chapter 4

EMERGENCIES PROCEDURES AND EQUIPMENT

4.1. Procedures in Case of Fire:

4.1.1. Remain calm; activate the fire alarm by pulling the nearest pull station.

4.1.2. Notify the Fire Department by dialing 911 or 478-222-2900. If you dial 9-1-1 from a cell phone you will reach Houston County Dispatch Center, ensure they are told you are reporting a fire or emergency on RAFB. When you are connected to the RAFB Emergency Communications Center (ECC) provide the following information.

4.1.2.1. Building number, building name, or street number.

4.1.2.2. Nature/type of emergency reporting.

4.1.2.3. Name of person reporting the emergency.

4.1.2.4. Provide call back phone number to operator.

4.1.2.5. Any other pertinent information.

4.1.2.6. Do not hang up until the ECC operator tells you to.

4.1.2.7. After reporting an emergency, direct the emergency vehicles to the fire scene if able.

4.1.3. Evacuate all personnel and never re-enter the building once evacuated. The Facility Manager shall have a designated meeting place for accountability.

4.1.4. Use portable fire extinguishers to extinguish a fire if trained to do so and the fire is discovered in its early stages. Have an escape route prior to fighting the fire.

4.2. Driver Operators Responsibilities:

4.2.1. All drivers of vehicles noting the approach of responding emergency vehicles, hearing sirens, or observing warning lights, shall pull over to the right or curbside, stop and remain stopped until all emergency vehicles have passed.

4.2.2. All spectators or other personnel not involved in emergency operations must stay clear of the scene and not interfere with emergency operations.

4.3. Fire Extinguishers:

4.3.1. Fire extinguishers shall be supplied as part of all construction projects. Placement of fire extinguishers shall be IAW UFC 3-600-01, AFI 91-203, NFPA 10 and NFPA 101.

4.3.2. Fire extinguisher Purchase and Maintenance. Facility managers and using organizations shall budget for purchase and maintenance of fire extinguishers, and appropriate mounting equipment.

4.3.3. Fire extinguishers having a gross weight not exceeding 40 pounds (lbs) shall be installed so that the top of the fire extinguisher is not more than five feet above the floor. Fire extinguishers having a gross weight greater than 40 lbs (except wheeled type) shall be installed so that the top of the extinguisher is not more than three and one half feet above the

floor. In no case shall the clearance between the extinguisher and the floor be less than four inches.

4.3.3.1. Where fire extinguisher cabinets are not provided, there shall be suitable hangers or supports for extinguishers.

4.3.4. Fire extinguishers shall be distributed throughout the protected area so that they are unobstructed, readily accessible, and located in the normal path of exit from the area.

4.3.5. Fire extinguishers shall be subjected to maintenance not more than one year apart or when specified by a fire inspector.

4.3.5.1. Facility Manager or organizational fire extinguisher checklist:

4.3.5.1.1. Check all fire extinguishers monthly for the following:

4.3.5.1.2. Visual damage to cylinder body, hose, discharge handle, and gauge assembly.

4.3.5.1.3. Ensure pin and seal are installed and properly secured.

4.3.5.1.4. Ensure gauge is reading in the full zone (green zone).

4.3.5.1.5. Ensure that there is not any visible blockage of the discharge hose, and that the hose is maintained in a serviceable condition.

4.3.5.1.6. If any of the above conditions are observed:

4.3.5.1.6.1. Immediately remove the extinguisher from service and replace.

4.3.6. In large rooms, and in certain locations where visual obstructions cannot be completely avoided, means shall be provided to indicate the extinguisher location.

4.3.7. Flight line fire extinguishers (150 lb Halon 1211) are procured for the protection of aircraft and adjacent ground equipment. Flight line extinguishers shall not be located within any facility except for fueled aircraft hangars. They are placed according to the guidelines in T.O. 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding.* The user or using organizations will be responsible for moving flight line fire extinguishers from established pickup/drop off points to the location requiring the extinguisher.

4.3.7.1. Do not lay the 150 lb Halon 1211 fire extinguisher down. This flight line extinguisher must be utilized from the upright position.

4.3.7.2. Maintenance.

4.3.7.2.1. All 150 lb Halon 1211 flight line fire extinguishers will be serviced annually. This servicing is the responsibility of the using organization and is accomplished at building 150, the hydrostatic test facility.

4.3.8. Facility Managers or their representatives are responsible for the maintenance and upkeep and shall bring all facility fire extinguishers to building 150, the Hydrostatic Shop, IAW FES Memorandum on Fire Extinguisher Purchase and Maintenance for servicing and annual maintenance. This can be arranged by calling DSN 468-4000.

4.4. Tampering with Fire Safety Equipment:

4.4.1. Smoke alarms shall not be disconnected, pulled down, taped or painted over.

4.4.2. Only Fire Department, Civil Engineer or contractor personnel shall reset activated fire alarm systems.

4.4.3. Ensure fire detection systems, pull stations, and fire extinguishers are not hidden or blocked at any time.

4.4.4. Ensure nothing is hung from or attached to fire detection or fire suppression systems.

4.4.5. The initiation of fire alarms by any person or any attempt to alter, operate or damage the function of any fire detection/protective systems is strictly prohibited.

4.5. Reports and Records:

4.5.1. The Fire Prevention Office will maintain on file all fire investigation/inspection reports. This information is for official use only.

Chapter 5

GENERAL FIRE SAFETY

5.1. Fire Hydrants:

5.1.1. Parking of vehicles, equipment or permanent fixtures shall not be permitted within 15 feet of any fire hydrant.

5.1.2. Fire hydrants shall be used only for their intended purpose and shall be operated by authorized personnel only using standard hydrant wrenches.

5.1.3. When no other source of water is available at construction sites and water is required for construction purposes, permission may be granted by Civil Engineering to use a hydrant as a source of water.

5.1.3.1. Any fire hydrant found to be leaking, damaged, or defective shall be reported to Civil Engineer immediately so that proper repair may be started.

5.1.3.2. Whenever any fire hydrant is placed out-of-service for any reason, the Fire Department shall be notified immediately. Out-of-service hydrants shall be marked with an indicative marking, which shall fit over the hydrant outlet and be held in place by the outlet cap. The Fire Department shall be notified immediately whenever an out-of-service hydrant is restored to service.

5.2. Fire Lanes/Fire Access Ways:

5.2.1. Designated fire lanes and accessibility to fire lanes shall not be obstructed.

5.2.2. Prescribed fire lanes within, or exterior to, buildings or structures shall be identified by the Fire Department. It is the Facility Manager's responsibility to make sure these lanes are clearly marked and free from objects or illegal parking IAW NFPA 1 or applicable UFCs.

5.2.2.1. Fire department access roads shall have an unobstructed width of not less than 20 feet (ft) (6.1.mn).

5.2.2.2. Fire department access roads shall have an unobstructed vertical clearance of not less than 13 ft 6 in. (4.1 m).

5.2.2.3. Vertical clearance shall be permitted to be reduced provided such reduction does not impair access by fire apparatus, and approved signs are installed and maintained indicating the established vertical clearance when approved.

5.2.2.4. Vertical clearances or widths shall be increased when vertical clearances or widths are not adequate to accommodate fire apparatus.

5.2.2.5. Surface: Fire department access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be provided with an all-weather driving surface.

5.3. Evacuation Plans:

5.3.1. In large complex facilities, evacuation plans shall be located throughout the facility.

5.3.2. Evacuation plans shall include the following:

5.3.2.1. Layout of facility.

5.3.2.2. Location of fire extinguishers.

5.3.2.3. Location of fire alarm pulls station.

5.3.2.4. Primary and secondary means of egress. The plan must indicate primary and secondary egress from each specific evacuation point (classroom, office, etc).

5.3.2.5. Emergency phone numbers.

5.3.2.6. Assembly point outdoors for accountability.

5.4. Fire/Evacuation Drills:

5.4.1. Emergency egress and relocation drills shall be conducted as specified by the occupancy classification in NFPA 101, most current edition.

5.4.2. Supervisors and employees are responsible for the prompt evacuation of all personnel.

5.4.3. All fire drills requiring activation of fire alarms shall be coordinated in advance with the Fire Prevention Section.

5.4.4. During a fire evacuation drill, participating individuals shall continue under drill discipline even after reaching the outside area or place of safe assembly. Supervisors will ensure complete evacuation and accountability of all personnel.

5.4.5. Fire evacuation drills that involve the response of fire fighting apparatus, without prior warning and approval of the base Fire Department, are prohibited.

5.4.6. In conducting drills, emphasis shall be placed on orderly evacuation under proper discipline rather than on speed.

5.4.7. Drills shall include suitable procedures to ensure that all persons in the building or all persons subject to the drill actually participate.

5.4.8. Drills shall be held at unexpected times and under varying conditions to simulate the unusual conditions that occur in the case of fire.

5.5. Fire Doors:

5.5.1. Required fire rated/smoke doors shall not be altered, obstructed or modified. Labels shall not be painted over or removed from any required fire rated assembly.

5.5.2. Do not paint, cover, modify or hang heavy objects from any fire doors or fusible link assemblies.

5.5.3. Doors normally required to be kept closed shall not be secured in the open position at any time and shall be self-closing or automatic-closing IAW NFPA 101.

5.6. Fire Protection Equipment:

5.6.1. Activated sprinklers shall not be shut off except upon direction of the senior fire officer.

5.6.2. Only properly authorized personnel shall maintain and test sprinkler systems. The Fire Department shall be notified immediately of any test or sprinkler impairment.

5.6.3. Whenever any fire alarm system or sprinkler system is out of service for any reason, the Fire Department and Facility Manager shall be notified immediately. Refer to Chapter 3 of this RAFBI for specific roles and responsibilities for mitigating fire alarms and sprinkler impairments

5.6.4. Storage shall be kept at least 18 inches below all sprinkler heads. Storage over 15 ft must be kept at least 36 inches below all sprinkler heads.

5.6.5. All building modification projects in buildings with sprinkler systems shall include provisions for the modification or rearranging of the sprinkler system as necessary for compliance with NFPA 13.

5.6.6. Do not paint, cover, hang objects from or obstruct sprinklers, risers, pull stations, fire alarms, fire alarm panels, post indicator valves and any other fire detection devices.

5.6.7. Ensure fire department connections are visible, accessible, couplings or swivels rotate smoothly and not painted shut, plugs or caps are in place.

5.6.8. Maintain a 3 ft clear space around all fire protection devices listed in 5.6.6, and 5.6.7.

5.6.9. Do not park vehicles within 15 ft of devices listed in 5.6.6, and 5.6.7.

5.7. Smoking:

5.7.1. Smoking is prohibited in all RAFB facilities, including roof assemblies and mechanical rooms. All personnel are subject to the restrictions prescribed in AFI 40-102, *Tobacco Free Living*. Contact the Health and Wellness Center for designating tobacco use areas.

5.7.2. Smoking is prohibited in all areas where explosives, chemicals, flammable or highly combustible materials are stored or handled.

5.7.3. Dispose of smoking materials in approved containers listed by Underwriter Laboratory (UL) or other recognized testing laboratory specifically designed for smoking materials.

5.7.4. For additional guidance refer to AFI 91-203, *Air Force Consolidated Occupational Safety Instruction*.

5.8. Electrical Safety:

5.8.1. The current edition of NFPA 70 shall be the minimum standard for all electrical wiring and equipment. Only qualified electricians shall install, repair, or modify electrical wiring, or any attachments for electrical appliances.

5.8.2. Use only electrical appliances and devices that bear the UL label or those listed by other approved testing agency. Appliances or devices that do not have the UL label or other approved listing shall not be used. All appliances must be provided with an adequate power supply.

5.8.3. All electrical wiring, equipment, and devices, shall be in compliance with NFPA 70, Article 500 and 501 in areas where classified hazardous conditions are present.

5.8.4. Electric switches, circuit breakers, and fuses in power panels shall be labeled correctly to indicate the circuits or devices they control. Do not store any materials beneath or above

and provide continuously clear access to all panels. Maintain a clearance of at least three feet in depth in front of electric panels and a minimum of three feet clearance for all electrical equipment serving 600 volts or less.

5.8.5. Do not place combustible shades, decorations, or other materials on or over light bulbs.

5.8.6. Use of extension cords shall be of sufficient gauge for the applicable use (same rating or higher than the appliance being energized). Refer to AFI 91-203 for specific guidance.

5.8.7. Do not hang anything from or attach anything to electrical cords, wiring or conduit.

5.8.8. UL approved power strips with safety fuses are permitted. This is to prevent overloading of circuits. Power strips shall not be connected in series with any other power strips or extension cords. Do not plug in refrigerators, microwave ovens, space heaters or any other high amperage appliance into any type power strip.

5.8.9. Not more than one surge protector is permitted per outlet.

5.8.10. Electrical cords shall be without splices and shall not be hung over nails, rafters, or in a manner which would constitute a fire hazard. Electrical cords shall not be placed under rugs, carpets or other combustible materials. Extension cords shall not be used in lieu of permanent wiring and shall not run through walls, ceilings, floors, doorways, windows, or other openings.

5.9. Cooking Appliances:

5.9.1. Cooking is permitted only in properly equipped locations IAW NFPA 1.

5.9.2. The use of high amperage equipment such as coffee makers, refrigerators, microwave ovens heaters, food preparation equipment, etc., shall comply with provisions of AFI 91-203. Heating appliances, such as toasters, toaster oven and coffee makers shall be plugged directly into a hard-wired facility outlet and shall be unplugged at the end of the work shift. Additionally, coffee makers in the workplace shall have an auto-shutoff device or the unit shall be unplugged from the electrical sources when left unattended.

5.9.3. Exhaust systems over cooking surfaces where smoke or grease-laden vapors are produced shall have removable baffle type filters or listed/approved grease extractors. Cooking shall not be done unless all filters are in place. Any open flame or appliances that produce grease laden vapors is prohibited in base facilities not equipped for that type of cooking IAW NFPA 96.

5.9.4. Hoods and associated duct systems over commercial type cooking equipment where grease-laden vapors are produced shall be protected and serviced IAW AFI 91-203.

5.9.5. The correct type of portable fire extinguishers shall be provided at all locations where cooking is conducted IAW NFPA 10.

5.9.6. When hood and duct exhaust fans are inoperative, cooking shall stop immediately until the exhaust fan is fully operational.

5.9.7. Do not install deep fat fryers closer than 16 inches to cooking equipment with open flame. Provide a metal or metal-clad cover for each deep fat fryer and have them readily available for immediate use in case of fire.

5.10. Heating Appliances:

5.10.1. All building heating equipment shall be Underwriters Laboratory (UL) listed or Factory Mutual (FM) approved, or IAW the American Gas Association. Heating equipment shall be installed IAW the manufacturer's instructions and NFPA Standards.

5.10.2. The use of unvented hydrocarbon fueled heating appliances inside buildings is prohibited.

5.10.3. The use of open flame heating devices is prohibited in all areas.

5.10.4. As a matter of policy, unrestricted use of space heaters is not permitted due to energy conservation and electrical circuit capacity concerns. All requests to utilize space heaters must be submitted to the 78 CEG Customer Service Flight, AF Form 332 *Base Civil Engineering Work Request.*

5.10.5. If permitted, all space heaters must be UL listed or FM approved. Units must have a built-in tilt switch and screen over the heating elements. All space heaters must have an electrical rating of 110 or 120 volts with no more than 550 watts electrical heat rating, be kept at least 36 inches away from combustible materials, and will not be left unattended. Do not plug the portable space heater into an extension cord or multi-outlet strip. Safe and proper use of space heaters will be the responsibility of the users and the Facility Manager.

5.10.6. Ensure clothes dryers are vented to the exterior of a facility. Keep dryers, lint traps, and vent piping free of lint accumulation.

5.10.7. Keep combustible materials a minimum of 3 ft from all heating appliances.

5.11. Open Fires/Barbecues/Fireworks:

5.11.1. Fireworks, are not permitted on RAFB, open fires are permitted IAW 5.11.5 and 5.11.6 below.

5.11.2. Burning of classified is not permitted. Use classified shredder only. Contact 78ABW/ SCOK for more information.

5.11.3. Barbecues/Deep Fat Fryers that use propane/butane cooking units shall not be used inside any structure or located within 10 ft of any building, balcony or overhang when in use. Special care shall be taken not to place these units near air handling equipment. Upon completion of cooking, hot coals shall be quenched with water or covered with a noncombustible cover to prevent sparks or hot coals from being scattered by the wind. All ashes and coals shall be cold-safe prior to disposal.

5.11.4. Barbecue grills that utilize propane tanks shall not be stored as a connected unit unless it is located and secured outside at least 3 ft from the facility. If grills are to be stored inside, the grills need to be cold safe and the tank must be disconnected and stored in a covered, outdoor secured area.

5.11.5. Military Family Housing and Fam Camp occupants; manufacture outdoor fire pits are authorized for use. Ensure that they are at least fifteen feet from any structure. All ashes and coals shall be cold-safe prior to disposal.

5.11.6. Use of Boy Scout fire ring will be coordinated in advance with Fire Prevention.

5.12. Decorations:

5.12.1. Furnishings and decorations in building occupancies such as health care, day care, and places of public assembly shall be in compliance with NFPA 1 and NFPA 101.

5.12.2. The burning of candles and similar open flame devices in any building, with the exception of family housing, is prohibited. For an exception see Chapter 8.1.3. of this RAFBI.

5.12.3. Decorations, such as paper, flowers, tinsel, streamers, parachutes, camouflaging, scenery, etc., must have a flame resistant rating prior to use. Decorations shall be kept to a minimum. Ensure decorations do not interfere with fire protection systems. At no time, shall decorations obscure or block exits or any means of egress from the facility.

5.12.4. The use of a natural Christmas tree inside any facility on Robins AFB is prohibited, with the exception of Family Housing.

5.12.5. Artificial Christmas trees must be UL listed or FM approved and shall have a fire resistive rating.

5.13. Parking of Vehicles:

5.13.1. Parking of vehicles and equipment shall be controlled to ensure free access of emergency response equipment to all sides of buildings.

5.13.2. Vehicles including motorcycles shall not be permitted in any building for parking, repairs or storage, except for approved maintenance or storage facilities. Vehicles, including motorcycles, shall not be parked under stairs or within exit discharge leading to a public way.

5.14. Storage and Handling:

5.14.1. Good housekeeping and cleanliness are major factors in preventing fires. Housekeeping activities are the responsibility of the using agency or organization, whether or not custodial services are provided. Maintain and enforce good housekeeping at all times.

5.14.2. Attics and concealed spaces will be kept clean. No storage of any type is permitted in these areas except in Military Family Housing.

5.14.3. Steel wool shall be stored within a metal storage container.

5.14.4. Rags and other combustible cleaning textiles shall be stored in proper containers.

5.14.5. Facility Managers shall ensure that ceiling tiles are in place at all times.

5.15. Storage in Mechanical and Boiler Rooms:

5.15.1. Storage is prohibited in mechanical, electrical, and boiler rooms.

5.15.2. Mechanical, electrical and boiler rooms are to be kept secured.

5.15.3. Fire extinguishers are not required in mechanical or boiler rooms.

5.16. Garbage:

5.16.1. Dispose of rubbish and scrap materials in properly identified and located non-combustible cans, bins, or receptacles. Keep all work areas reasonably free of the accumulation of combustible materials.

5.16.2. Place dumpster units and other central trash disposal units at least 25 ft from any building unless barricaded by a noncombustible wall. Dumpster lids shall be kept closed, except when refuse is being loaded into or unloaded out of dumpsters.

5.16.3. Leaves and vegetation will be cleared from under and around buildings (including gazebos). Facility Managers must not allow cuttings to accumulate within six ft of buildings. Remove all dead vegetation.

5.16.4. Empty dust collection bags and other waste receptacles at the end of the workday. Ensure areas used for packing and crating are kept free of excessive accumulation of combustible materials.

5.17. Vacant Buildings:

5.17.1. Vacant buildings shall be secured against unauthorized trespass.

5.17.2. Electrical power for fire alarm systems and support of sprinkler systems shall be maintained, if so equipped.

5.18. Exits:

5.18.1. Every required exit access, exit, or exit discharge shall be continuously maintained free of all obstructions or impediments in the case of fire or other emergencies. When this requirement cannot be met contact the Fire Prevention Section for mitigation/corrective actions.

5.18.2. Doors and gates (used in egress paths) shall be arranged to be readily opened from the egress side whenever the building is occupied. Locks, if provided, shall not require the use of a key, tool, special knowledge, or effort for operation from the inside of the building.

5.18.3. No exit door shall be locked as to restrict egress, but may be to prevent entry into a facility.

5.18.4. Exit in all facilities shall be arranged for full compliance with NFPA 101.

5.18.5. Restrictive hardware, such as padlocks and hasps, throw-bolts, and crossbars shall not be installed on any exit door except as permitted by NFPA 101. Doors may be provided with an alarm device for additional security control measures.

5.18.6. Stairway or stairway enclosures(areas beneath stairways) shall not be used for storage or for any purpose other than a stairway or means of egress.

5.18.7. Stairway enclosures are required to be protected by self-closing doors. These doors shall not be wedged or blocked in the opened position or by any other device which prevents the doors from closing automatically, unless specifically designed for this purpose.

5.19. Exit Signs/Emergency Lighting:

5.19.1. All exit signs required by ETL 99-4 and NFPA 101 shall be continuously illuminated to identify egress routes in all facilities.

5.19.2. The Fire Prevention office will be the only entity on base to determine if the exit is to be marked as “NO EXIT” or “EXIT BLOCKED”.

5.19.3. All emergency lighting units shall be fully operational IAW ETL 99-4 and NFPA 101.

5.20. Means of Locking and Securing Exits:

5.20.1. Restrictive hardware, such as padlocks, hasps, throw-bolts, and crossbars shall not be installed on any exit door except as permitted by NFPA 101. Doors may be provided with an alarm device for additional control measures.

5.21. Travel Distance Limitations:

5.21.1. Travel distance is determined by the type of occupancy. This means the distance that one needs to travel from the most remote place in the facility to an exit varies according to the type of occupancy IAW NFPA 101.

5.21.2. For questions concerning travel distance, contact the Fire Prevention section at DSN 468-2145.

Chapter 6

HAZARDOUS MATERIALS

6.1. Explosives, Blasting Agents and Pyrotechnics:

6.1.1. For the purpose of this RAFBI, an explosive is defined as any substance or article, including a device, which is designed to function by explosion (i.e., an extremely rapid release of gas and heat) or which, by chemical reaction within itself, is able to function in a similar manner even if not designed to function by explosion.

6.1.2. Explosives, blasting agents and pyrotechnics will be stored, handled and used in accordance with NFPA 495, *Explosive Materials Code,* AFMAN 91-201, *Explosives Safety Standards.*

6.1.3. Explosives, blasting agents or pyrotechnics will not be transported by any person or agency on the installation without notifying the base Fire Emergency Services Operations Section, extension DSN 468-3487 or DSN 468-3488. All movements or relocation of explosives (except 1.4) are included in this requirement.

6.1.4. The sale, possession of, use, storage or transportation of fireworks is prohibited on RAFB unless approved in writing by the Installation Commander.

6.1.5. Proper fire symbols must be posted on all buildings, rooms or areas storing explosives as required by AFMAN 91-201 and/or the explosives license for that area. Personnel in charge of explosives must promptly notify the base Fire Department at extension DSN 468-3487/DSN 468-3488 or update the automated Fire Symbol Tracking System (FSTS) in Geobase each time there is a change in the explosives fire or hazard symbols.

6.1.6. Fire Drills: Fire drills must be conducted within explosive storage areas at intervals not to exceed six months. Coordinate drills through the base Fire Emergency Services Training Section at extension DSN 497-6847, Weapons Safety (78 ABW/SEW) office and the unit commander of the affected area. Ensure all involved are aware that an exercise, not an actual fire, is in progress.

6.1.7. Vegetation Control: All grounds surrounding storage areas will be kept clear of excess vegetation by establishing appropriate mowing and weed control. To eliminate a substantial fire hazard, cut or dead vegetation shall be removed from earth-covered igloos after mowing has been performed. To ensure proper vegetation control, coordinate with grounds maintenance contractor Quality Assurance Evaluator, 78 CES/CEOS.

6.1.8. Do not conduct controlled burning within 200 ft of any explosives locations. The base Fire Chief will coordinate and provide oversight for controlled burning of vegetation, should the need arise. Close windows, doors and ventilators of facilities containing explosives within 600 feet of burning operations.

6.1.9. Do not use flammable liquids for cleaning purposes within an explosives area or near explosives, except as authorized. Confine authorized use to a specific designated work area. In-use stocks may not exceed a 1-day supply. Store materials in approved/labeled/listed safety containers only.

6.1.10. Store only small stocks of flammable materials, such as paints and solvents required to support explosives maintenance. When not in use, store in exterior location. Use flammable storage cabinets or lockers.

6.1.11. Do not park vehicles, other than those being loaded or unloaded, closer than 25 ft to any explosives facility or storage area.

6.1.12. Use the following guidance when operating support equipment (not including vehicles) powered by internal combustion engines.

6.1.12.1. Locate equipment 50 ft or more from explosives.

6.1.12.2. Place aircraft ground support equipment as far away as the length of the cord will allow.

6.1.12.3. Equipment may be closer provided adequate ventilation and a fire resistant dividing wall are provided.

6.1.12.4. Equipment designed into and installed as part of an operating or storage facility is exempt.

6.1.12.5. Do not refuel equipment within 100 ft of explosives.

6.1.12.6. Vehicles transporting explosives shall not be refueled with gasoline while explosives are in the vehicle, except in an emergency, then only with the engine stopped, all lights and radios off, and static grounding devices properly connected.

6.1.13. Stacking Combustible Material: See AFMAN 91-201.

6.1.14. Fire Extinguishers.

6.1.14.1. Unless otherwise directed by the base Fire Department, provide a minimum of two serviceable extinguishers suitable for the hazards involved.

6.1.14.2. The types of extinguishers that are required will be established on the explosive license in local Operating Instructions for the specified area or as outlined in AFMAN 91-201 for any explosive operating or storage location.

6.1.14.3. Ensure one fire extinguisher is available for each item of powered materials handling equipment used to handle or transport explosives.

6.1.14.4. Provide each explosives-laden vehicle used for transport with at least two portable 2A:10BC (5 lbs Dry Chemical) rated extinguishers.

6.1.14.5. Provide flight line fire extinguishers for each aircraft according to munitions manuals and **Chapter 4**, paragraph 4.3.6., of this document.

6.1.14.6. Fire extinguishers must be inspected annually. For guidance on maintenance and inspection see **Chapter 4**, *Fire Extinguishers*, of this RAFBI.

6.1.15. Emergency Withdrawal Distances for Nonessential Personnel: Refer to AFMAN 91-201.

6.1.16. Firefighting Guidance Symbols: Refer to AFMAN 91-201.

6.1.16.1. Chemical Hazard Symbols: Refer to AFMAN 91-201.

6.1.17. Explosive Placards: Use Department of Transportation placards for the transportation of explosives as directed in AFMAN 91-201, and Code of Federal Regulations (CFR) Title 49.

6.1.18. Postings of firefighting symbols requirements are outlined in AFMAN 91-201.

6.2. Flammable and Combustible Liquids:

6.2.1. Flammable and combustible liquids dispensing, storage and use will be IAW the requirements of NFPA 30, *Flammable and Combustible Liquids Code*, AFI 91-203, *Air Force Consolidated Occupational Safety Instruction* **Chapter 22**, 29 CFR 1910.106, *OSHA's Flammable and Combustible Liquids Regulation*. For the purposes of this RAFBI, flammable liquids are defined as any liquid with a flash point below 100° Fahrenheit. Examples of flammable liquids include gasoline, alcohol, naphtha, lacquer paints and thinners. Combustible liquids are defined as any liquid having a flashpoint greater than 100° Fahrenheit. Combustible liquids include kerosene, mineral spirits, #2 diesel fuel and JP-8. Flammable and combustible liquids are divided into classes, refer to Table 6.1 below.

Table 6.1. Flammable and Combustible Classes.

CLASS	FLASH POINT	BOILING POINT
IA	<73°F (22.8°C)	<100°F (37.8°C)
IB	<73°F (22.8°C)	=/>100°F (37.8°C)
IC	=/>73°F (22.8°C) but <100°F (37.8°C)	N/A
II	=/>100°F (37.8°C) but <140°F (60°C)	N/A
IIIA	=/>140°F (60°C) but <200° F (93°C)	N/A
IIIB*	=/>200°F (93°C)	N/A
*This class is not included in AFI 91-203		

6.2.1.1. Authorized storage areas (i.e., Exterior Hazardous Waste Accumulation Site (EHWAS)) for flammable and combustible liquids will be located not less than 50 ft from other structures, except as authorized by the base Fire Emergency Services.

6.2.1.2. When not in use, all flammable or combustible liquid containers (including safety cans or pots) will be stored in approved flammable storage cabinets or areas.

6.2.1.3. Where flammable cabinets are utilized they will conform to the following requirements:

6.2.1.3.1. Cabinets must be constructed IAW requirements of AFI 91-203 and NFPA 30.

6.2.1.3.2. Cabinets must have an operational, 3-point lock system on doors (doors may be self-closing, but is not required).

6.2.1.3.3. Cabinets must have a 2-inch catch basin in the bottom for spill containment. NOTE: Materials may be stored in this basin. However, prudence must be utilized as to not defeat the purpose of the storage basin.

6.2.1.3.4. Cabinet must have a visible, contrasting color, exterior label which states: **FLAMMABLE - KEEP FIRE AWAY**.

6.2.1.3.5. Use of other languages, the international symbol for "flammable" (a flame in a triangle), the international symbol for "keep away" (a burning match in "no" circle) shall be permitted

6.2.1.3.6. No open containers are allowed in storage cabinets. Flammable/combustible liquids must be in approved, properly labeled containers, with lids.

6.2.1.3.7. Cabinets must have 1 1/2 inch air space between exterior/interior walls and cabinets.

6.2.1.3.8. No more than a total of 120 gallons of class I, II, and III flammable/combustible liquids shall be stored in a single cabinet.

6.2.1.3.9. From the 120 total gallons, no more than 60 gallons of class I and II flammable/combustible liquids may be stored in a single cabinet.

6.2.1.3.10. Not more than three such cabinets may be located in a single fire area. Exception is in certain industrial areas. NOTE: For definitions of a fire area refer to AFI 91-203, Chapter 22.

6.2.1.3.11. Additional cabinets maybe located in the same fire area of an individual area if the additional cabinet, or group of more than three (120 gallons each) cabinets, is separated from other cabinets or group of cabinets by at least 100 feet. The total aggregate volume of Class I, Class II and Class IIIA liquids in a group of storage cabinets shall not exceed maximum allowable quantity (MAQ) of flammable and combustible liquids per control area based on the occupancy where the cabinets are located. The MAQs of liquids allowed in each control area shall not exceed the amounts specified in the below table. If a unit requires more than three (3) storage cabinets, it must coordinate with the FES Flight. Refer to NFPA 30 and the below table for additional information. NFPA 30 is available for review at the FES Flight. **Note:** The limit of three (3) cabinets in a single area can be increased where smaller cabinets are used. However, the maximum amount of flammable storage cannot exceed that which could be stored in three 120 gallon capacity cabinets (460 liters).

Table 6.2. Maximum Allowable Quantities per Control Area.

MAXIMUM ALLOWABLE QUANTITIES per CONTROL AREA				
MAQ of Flammable and Combustible Liquids per Control Area				
	Liquid Class(es)	**Quantity**		**Notes**
		gal	**L**	
Flammable Liquids	IA	30	115	1, 2
	IB and IC	120	460	1, 2
	IA, IB, IC Combined	120	460	1, 2, 3
Combustible Liquids	II	120	460	1, 2
	IIIA	330	1,265	1, 2
	IIIB	13,200	50,600	1, 4

Reference: Table 9.6.1 of NFPA 30, 2015 Edition

Note 1: Quantities are permitted to be increased 100 percent where stored in approved flammable liquids storage cabinets or in safety cans in accordance with the fire code. Where Note 2 also applies, the increase for both notes is permitted to be applied accumulatively.

Note 2: Quantities are permitted to be increased 100 percent in buildings equipment throughout with an automatic sprinkler system installed in accordance with NFPA13, *Standard for the Installation of Sprinkler Systems.* Where note 1 also applies, the increase for both notes is permitted to be applied accumulatively.

Note 3: Containing not more than the maximum allowable quantity per control are of Class IA, Class IB, or Class IC flammable liquids, individually.

Note 4: Quantities are not limited in building equipped throughout with an automatic sprinkler system installed in accordance with NFPA 13, and designed IAW the protection criteria contained in Chapter 16 of NFPA 30.

6.2.1.3.12. Incidental Storage of Flammable Liquids in Industrial Areas. Incidental storage shall be authorized only after the following requirements are met:

6.2.1.3.12.1. Incidental storage shall be in industrial areas only.

6.2.1.3.12.2. Storage shall be in metal cabinets stenciled,—FLAMMABLE—KEEP FIRE AWAY (metal wall lockers meet this requirements).

6.2.1.3.12.3. Storage shall be limited to 1 gallon (4 liters) of Class I or 10 gallons (40 liters) of Class II and Class III liquids, not to exceed 10 gallons (40 liters) total per cabinet, in close containers. Storage shall be limited to a 5-day supply of flammables in a metal cabinet, and in closed containers not to exceed limits

specified above. Each work center shall be limited to one cabinet.

6.2.1.3.12.4. The installation FES Flight shall be consulted prior to establishing incidental storage areas in industrial shops.

6.2.1.3.13. HAZMAT Pharmacies and Other Areas that may Exceed MAQs Limit. In HAZMAT Pharmacies, buildings and/or portions of buildings where liquids area stored that may exceed MAQs per control area shall be classified as High-Hazard Level 3, as established by NFPA 30.

6.2.1.3.14. No oxidizers, corrosives or other incompatible substances, which may adversely react with the flammable/combustible liquids, may be placed in the same cabinet. If storage of other materials is required, see the appropriate section of this RAFBI or AFI 91-203 that addresses the class of the material in question.

6.2.1.3.15. Flammable storage cabinets must not be located next to exit doors, nor physically obstruct a means of egress from the building or area. Additionally, cabinets may not be placed under stairways or near any other egress routes.

6.2.1.3.16. If the cabinet is located indoors, the ventilation caps/bungs must be in place. If the cabinet must be vented, venting must be performed through piping to the outdoors. For outdoor storage, the vent caps/bungs should be removed.

6.2.1.3.17. Rags and other combustible materials will not be stored inside flammable storage cabinets. Unopened shipping boxes/containers and protective packaging from the manufacturers, which contain flammable liquids, are permitted. However, once the box/container is opened and at least one internal container removed, all containers shall be removed and the outside box shall be discarded. Boxes/containers opened for labeling purposes may be stored only if the container is full and complete. Protective over packing that secures containers from breaking, tipping over or spilling shall be permitted until empty of all containers.

6.2.1.3.18. Grounding of flammable storage cabinets is not required.

6.2.1.4. Flammable/combustible liquids will not be stored in any public assembly facility, club, barracks, unaccompanied officers' quarters, office areas, desks, unattended work benches, buildings which normally are used as sleeping quarters and other similar type locations.

6.2.1.5. Gasoline or other flammable/combustible liquid containers, utilized or sold on this installation will be UL or like agency tested/listed, having a tight closing screw or spring type lid and fitted with a suitable pouring spout. Glass or plastic containers will not be used for storing, dispensing or carrying flammable liquids unless they are approved for this purpose and/or are received from the manufacturer in this configuration.

6.2.1.6. Flammable/combustible liquid containers found to be leaking will be moved to a safe location and the contents transferred to a serviceable container. Leaking containers will be disposed of properly. Contact the Environmental Management, Waste Disposal section at DSN 468-1176 for guidance on container disposal.

6.2.1.7. Flammable and combustible liquids will not be disposed of in sewers, canals, drainage systems or any other restricted or unauthorized area.

6.2.1.8. Gasoline or other flammable liquids will not be used for cleaning equipment parts, refinishing floors, desks, or other furniture. Only non-flammable cleaners or solvents and/or water based solvent detergents will be used.

6.2.1.9. Dip tanks, vats, wash tanks, bench washing vats or parts washers and other similar containers will be of metal construction, equipped with tight fitting, noncombustible covers, equipped with fusible links which will close the covers automatically in the event of fire. Lids will remain closed when not in use.

6.2.1.10. No smoking areas will be strictly enforced.

6.2.1.11. Oily rags and waste will be stored in closed, metal or rated plastic. Properly labeled containers with tight fitting lids and emptied at least once daily or more often if needed (spring loaded or "easy open" lids on 55 gallon drums, used for rag containers, as satellite accumulation points are permitted).

6.2.1.12. Gasoline or other fuels will be drained from fuel tanks or immersion heaters, lawn mowers, kitchen ranges, gas lanterns and other like equipment, prior to storage in supply rooms. Filler caps on fuel tanks will be tightly closed.

6.2.1.13. Gravity discharge of any flammable/combustible liquid from tanks, drums, or containers other than UL listed safety cans is prohibited within structures, unless the area used for dispensing is approved, designed and designated for indoor dispensing.

6.2.1.14. Flammable/combustible liquids will be drawn from or dispensed into tanks or containers within a building or non-dispensing designated area only with the drum in an upright position, using approved and listed, manually, pneumatically, or electrically operated pumps.

6.2.1.15. Tanks, hoses, and containers will be bonded and grounded while flammable liquids are being poured or dispensed to prevent static electricity discharge. Flammable or combustible liquids stored in plastic drums shall only be stored on heavy plastic or nylon type pallets. Wood pallets are not permitted for this use.

6.2.1.16. Transfer of flammable liquids or purging of tanks or containers by compressed air or gases is prohibited (other than is specified in T.O.s or written in procedural guides).

6.2.1.17. The storage of fuel in containers or in power mowers, outboard motors, and similar equipment with fuel tanks shall be in an outside building under the following guidelines:

6.2.1.17.1. The total amount in the container or equipment will not exceed 25 gallons (except equipment which has an integral gasoline tank).

6.2.1.17.2. Gasoline will only be stored in a safety can listed by a nationally recognized testing laboratory.

6.2.1.17.3. No refueling will be conducted inside or within 10 ft of any building, including garages, basements, or attached right of ways.

6.2.1.18. Outside storage buildings, storing of flammable and combustible liquids: See AFI 91-203.

6.2.1.18.1. Outside storage of flammable liquid lockers:

6.2.1.18.1.1. Lockers will not exceed 1500 square ft. gross floor area.

6.2.1.18.1.1.1. Vertical stacking of lockers shall not be permitted.

6.2.1.18.1.1.2. Lockers shall include a spill containment system to prevent the flow of liquids from the structure under emergency conditions. The containment system shall have sufficient capacity to contain 10 percent of the volume of containers allowed or the volume of the largest container, whichever is greater.

6.2.1.18.1.2. Designated sites:

6.2.1.18.1.2.1. Lockers shall be placed at least five ft. apart, and be placed no less than ten ft. from any building or public way/property line.

6.2.1.18.1.2.2. The approved designated storage site shall be protected from tampering or trespassing when the area is accessible to the general public.

6.2.1.18.1.2.3. No other flammable or combustible material storage shall be within the designated site.

6.2.1.19. Fire prevention in flammable storage areas:

6.2.1.19.1. At least one serviceable portable fire extinguisher rated not less than 4A: 20 B:C (10 lbs Dry Chemical) will be located between 10 and 25 ft of any flammable liquid storage area located outside of a storage room, but inside a building.

6.2.1.19.2. Fire extinguishing systems will be via sprinkler, water spray, or other USAF approved systems.

6.2.1.19.3. Open flames and smoking will not be permitted in or within 50 ft. of flammable or combustible liquid storage areas.

6.2.1.19.4. Water reactive materials will not be stored in the same room with flammable or combustible liquids. Exception: Small quantities may be stored in laboratories. Refer to AFI 91-203.

6.2.1.19.5. Containers and portable tanks used for Class I liquids will be electrically bonded and grounded during transfer of liquids.

6.2.1.19.6. Liquid and aerosol containers will be protected from heat sources since heat will cause the contents to expand and pressurize the containers. At elevated temperatures, rupture of the containers may occur.

6.2.1.20. Storage and use of flammable and combustible liquids in specific applications:

6.2.1.20.1. For laboratories - see AFI 91-203.

6.2.1.20.2. For base exchanges, commissaries and associated retail stores - See AFI 91-203.

6.2.1.20.3. For small gasoline powered equipment - See AFI 91-203.

6.3. Flammable Solid:

6.3.1. For the purposes of this RAFBI, flammable solids are defined as a solid other than a blasting agent or explosive as defined in 29 CFR 1910.109(a) that is liable to cause a fire

through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard.

6.3.2. Flammable solids such as aluminum, magnesium, lithium, beryllium, titanium, zirconium, matches and sodium will be stored, machined, fabricated, heat treated, collected for scrap and disposed of IAW with the provisions of NFPA 480, *Standard for the Storage, Handling, and Processing of Magnesium Solids and Powders,* NFPA 481, *Standard for the Production, Processing, Handling, and Storage of Titanium,* NFPA 482, *Standard for the Production, Processing, Handling and Storage of Zirconium,* NFPA 484, *Standard for Combustible Metals* and this Base Instruction. This section will also apply to the above applications for any flammable solid located on this installation.

6.3.3. Storage of Solid Flammable Scrap:

6.3.3.1. Solid flammable solid scrap, such as clippings and castings, shall be stored in non-combustible bins and containers pending salvage.

6.3.3.2. Oily rags, packing materials, and similar combustibles shall not be permitted in storage bins or areas storing flammable solid scrap.

6.3.4. Storage of Flammable Solid Powder:

6.3.4.1. Buildings used to store flammable solid powders shall be of non-combustible single-story construction.

6.3.4.2. The use of automatic sprinklers in such buildings shall be strictly prohibited.

6.3.4.3. Flammable solid powders shall be stored in steel drums or other closed containers. These containers shall be kept tightly sealed and stored in dry locations.

6.3.4.4. As necessary, flammable solid powder storage areas shall be checked for water leakage. If the area is found to have a water leak, an emergency work order will be initiated to correct the problem and the materials will be moved as far as possible from the source of the leak.

6.3.4.5. Areas that routinely are used for the storage of flammable solid powders shall be considered Class II, Group E, IAW NFPA 70, and the National Electric Code.

6.3.4.6. Suitable fire extinguishment material shall be readily available in these locations.

6.3.4.7. Where flammable solid powder in drums is stacked for storage, the maximum height shall not exceed 18 ft (5.5 m). Stacked storage shall be done in such a manner so as to ensure stability. Under no circumstance shall containers be permitted to topple over. The safest manner of storage is achieved using no stacking.

6.3.5. Storage of Finished Products:

6.3.5.1. This section shall apply to the storage of flammable solids, in warehouses, wholesale facilities, and retail outlets in the form of finished parts in which flammable solids make up the major portion of the articles on a volumetric basis.

6.3.5.2. Storage in quantities greater than 50 cubic ft. (1.4 m^3) shall be separated from other storage of materials that are either combustible or in combustible containers by aisles with a minimum width equal to the height of the piles of flammable solid products.

6.3.5.3. Flammable solid products stored in quantities greater than 1000 cubic ft. (28 m^3) shall be separated into piles each no larger than 1000 cubic ft (28 m^3), with the minimum aisle width equal to the height of the piles.

6.3.5.4. Where storage in quantities greater than 1000 cubic ft. (28 m^3) is contained in a building of combustible construction, or the flammable solid products are packed in combustible crates or cartons, or there is other combustible storage within 30 feet (9 m) of the flammable solid, the storage area shall be protected by automatic sprinklers.

6.3.6. Portable Fire Extinguishers for use on Flammable Solids:

6.3.6.1. Portable fire extinguishers shall be provided IAW NFPA 10. Water based or CO_2 extinguishers shall not be provided in areas containing flammable solids in fines, chips, pigs, ingots, billets, clippings, castings or powders.

6.3.6.2. If portable extinguishers are to be used on flammable solid fires, they shall be approved for use on Class D fires. The owner of the process, based on the flammable solid being stored, will make the proper agent type available.

6.3.6.3. Dry sodium chloride, Lith-X, Met-L-X, or other dry powders or compounds suitable for extinguishment or containment of flammable solid fires, shall be permitted to be substituted for Class D fire extinguishers. These alternative agents shall be stored in a manner that ensures the agent's effectiveness. Shovels or scoops shall be kept readily available adjacent to the containers. All extinguishing agent storage areas shall be clearly identified.

6.3.6.4. When a fire occurs in processing equipment, material fed to the equipment shall be stopped. The equipment shall be kept in operation unless continued operation will spread the fire.

6.3.7. Fire Prevention and Fire Protection Measures Concerning Flammable Solids:

6.3.7.1. The provisions of this section shall apply to all flammable solid production processes, handling and storage operations.

6.3.7.2. Buildings shall comply with the applicable provisions of NFPA 101.

6.3.7.3. Hot work permits shall be required in designated areas that contain exposed flammable solid fines or dust where hot work is conducted. All hot work areas that require a permit shall be thoroughly cleaned of flammable solid fines or dust before hot work is performed.

6.3.7.4. Good housekeeping practices shall be maintained. Supplies shall be stored in an orderly manner with properly maintained aisles to permit regular inspection and segregation of incompatible materials. Supplies of materials in flammable solid processing areas shall be limited to amounts necessary for normal operation.

6.3.7.5. Regular, periodic cleaning of flammable solid dust and fines from buildings and machinery shall be carried out as frequently as conditions warrant. Dust and fines shall be removed to a safe storage or disposal area. Consideration shall be given to the

potential ignition sources associated with the operation of equipment during the cleaning operation.

6.3.7.6. Regular inspections shall be conducted to detect the accumulation of excessive flammable solid dust, chips, or fines on any portions of buildings or machinery not regularly cleaned in daily operations. Records shall be kept of these inspections and they shall be filed in the Facility Manager's fire prevention folder.

6.3.7.7. Combustible materials shall not be discarded in containers used for the collection of dust, sward or turnings.

6.3.7.8. Oil and other liquid spills shall be cleaned up immediately.

6.3.7.9. Boring, crushing, blasting and drying equipment shall be properly electrically bonded and grounded to prevent accumulation of static electricity.

6.3.7.10. All electrical equipment and wiring in flammable solid production, processing, handling and storage facilities shall comply with NFPA 70.

6.3.7.11. Non-sparking tools and utensils shall be used in handling flammable solid powders.

6.3.7.12. All metal objects or equipment used in flammable solid operations shall be properly electrically bonded and grounded to prevent accumulation of static electricity.

6.3.7.13. Where flammable solids are collected or stored in containers, material-handling equipment with sufficient capability to remove any container from the immediate area in the case of an emergency shall be readily available.

6.3.7.14. Areas used for torch cutting of pieces of scrap shall be kept free of combustible materials.

6.4. Compressed Gases and Cryogenic Liquids:

6.4.1. For the purposes of this RAFBI, a compressed gas is defined as any material or mixture in a container with an absolute pressure exceeding 40 psi at 70° F (21.1° C); or regardless of pressure at 70° F, an absolute pressure exceeding 104 psi at 130° F (54.4° C) or a liquid having a vapor pressure exceeding 40 psi at 100° F (37.8° C) as determined by ASTM D-323-72. A cryogenic liquid is defined as a liquid having a boiling point lower than -150° F (-101°C) at 14.7 psia (an absolute pressure of 101 kPa).

6.4.2. Compressed gas and cryogenic liquid cylinders and pressurized storage tanks will be located, stored, utilized, inspected and transported IAW NFPA 55, *Compressed Gases and Cryogenic Fluid Code*, NFPA 50A, *Standard for Gaseous Hydrogen Systems at Consumer Sites*, NFPA 51, *Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting and Allied Processes*, NFPA 58, *Liquefied Petroleum Gas Code.* 49 CFR parts 100 to 179, *Code of Federal Regulations*, 29 CFR 1910.101, 102, 103, 104, 105, 111, Compressed Gas Association Pamphlets C-6 and C-8 and this RAFBI.

6.4.3. Compressed gases are divided into three subclasses by the Department of Transportation (DOT). They are as follows:

6.4.3.1. Division 2.1 - Flammable Gases.

6.4.3.2. Division 2.2 - Non-Flammable Gases.

6.4.3.3. Division 2.3 - Gases which are toxic or poisonous by inhalation.

6.4.4. Non-liquefied compressed gases, liquefied compressed gases, compressed gases in solution and cryogenic liquids will all fall within one of the three above sub-classes.

6.4.5. General compressed gas cylinder storage and use requirements:

6.4.5.1. Outdoor Storage - Outdoor storage areas shall have a minimum of 25 percent of the perimeter open to the atmosphere. This open space shall be permitted to incorporate chain link fence, lattice construction, open block or similar materials for the full height and width of the opening.

6.4.5.1.1. Storage areas shall be kept clear of dry vegetation and combustible materials for a minimum distance of 15 ft. (4.6 m).

6.4.5.1.2. Cylinders stored outside shall not be placed on the ground (earth) or on surfaces where water can accumulate.

6.4.5.1.3. Storage areas shall be provided with physical protection from vehicle damage.

6.4.5.1.4. Storage areas shall be permitted to be covered with canopies of noncombustible construction.

6.4.5.1.5. Cylinders stored out of doors will conform to the separation distances specified in Table 6.4.1 (below).

6.4.5.1.6. Assigned storage spaces must be located where cylinders will not be knocked over or damaged by passing or falling objects, or subject to tampering by unauthorized persons.

6.4.5.1.7. Each area storing/using cylinders shall determine that the compressed gas cylinders under their control are in a safe condition to the extent that it can be determined by visual inspection. Visual and other inspections shall be conducted as prescribed in the Hazardous Materials Regulations of the Department of Transportation (49 CFR, parts 171-179 and 14 CFR, part 103). Visual and other inspections shall be conducted IAW Compressed Gas Association Pamphlets where those regulations are not applicable.

6.4.5.1.8. In-plant handling, storage and utilization of all compressed gases in cylinders, portable tanks, rail tank cars or motor vehicle cargo tanks shall be IAW Compressed Gas Association Pamphlet P-1-1965.

6.4.5.1.8.1. All quantities of compressed and liquefied gases in separate storage areas in industrial, mercantile and/or storage facilities are included in the requirements of this instruction.

6.4.5.1.9. When two or more compressed gases are stored in a gas cabinet, the gases shall be compatible.

6.4.5.1.10. . Spill control, drainage, and secondary containment shall not be required for the storage of compressed gases.

6.4.5.1.11. Floors of storage areas shall be of noncombustible or limited-combustible construction.

6.4.5.1.12. Shelves used for storage of cylinders shall be of noncombustible construction and designed to support the weight of the cylinders stored.

6.4.5.1.13. For separation from incompatible or combustible materials, storage of compressed gases shall be either:

6.4.5.1.13.1. Segregated from any incompatible or combustible materials storage by a minimum of 20 feet (6.1 m), IAW Table 6.3 below; or isolated from any incompatible or combustible materials storage by a barrier of noncombustible material at least five ft. (1.5 m) high, having a minimum fire resistance rating of 1/2 hour.

Table 6.3. Separation of Gas Cylinders, Containers and Tanks by Hazard Class.

Gas Category	Other Gas	Unstable Reactive Class 2, Class 3, or Class 4		Corrosive		Oxidizing		Flammable		Pyrophoric		Toxic or Highly Toxic	
		ft	m	ft	m	ft	m	ft	m	ft	m	ft	m
Toxic or highly toxic	NR	20	6.1	20	6.1	20	6.1	20	6.1	20	6.1	—	—
Pyrophoric	NR	20	6.1	20	6.1	20	6.1	20	6.1	—	—	20	6.1
Flammable	NR	20	6.1	20	6.1	20	6.1	—	—	20	6.1	20	6.1
Oxidizing	NR	20	6.1	20	6.1	—	—	20	6.1	20	6.1	20	6.1
Corrosive	NR	20	6.1	—	—	20	6.1	20	6.1	20	6.1	20	6.1
Unstable reactive Class 2, Class 3, or Class 4	NR	—	—	20	6.1	20	6.1	20	6.1	20	6.1	20	6.1
Other gas	—	NR		NR		NR		NR		NR		NR	

NR: No separation required.

Table 6.4. Maximum Allowable Quantity (MAQ) of Hazardous Materials per Control Area.

			Storage			Use — Closed Systems			Use — Open Systems	
Material	Class	High Hazard Protection Level	Solid Pounds	Liquid Gallons	Gas[a] scf (lb)	Solid Pounds	Liquid Gallons	Gas[a] scf (lb)	Solid Pounds	Liquid Gallons
Cryogenic fluid	Flammable	2	NA	45[b,c]	NA	NA	45[b,c]	NA	NA	45[b,c]
	Oxidizing	3	NA	45[d,e]	NA	NA	45[d,e]	NA	NA	45[d,e]
	Inert	NA	NA	NL	NA	NA	NL	NA	NA	NL
Flammable, gas[f]	Gaseous	2	NA	NA	1000[d,e]	NA	NA	1000[d,e]	NA	NA
	Liquefied	2	NA	NA	(150)[d,e]	NA	NA	(150)[d,e]	NA	NA
	LP	2	NA	NA	(300)[g,h,i]	NA	NA	(300)[g]	NA	NA
Inert gas	Gaseous	NA	NA	NA	NL	NA	NA	NL	NA	NA
	Liquefied	NA	NA	NA	NL	NA	NA	NL	NA	NA
Oxidizing gas	Gaseous	3	NA	NA	1500[d,e]	NA	NA	1500[d,e]	NA	NA
	Liquefied	3	NA	NA	(150)[d,e]	NA	NA	(150)[d,e]	NA	NA
Pyrophoric gas	Gaseous	2	NA	NA	50[d,j]	NA	NA	50[d,j]	NA	NA
	Liquefied	2	NA	NA	(4)[d,j]	NA	NA	(4)[d,j]	NA	NA
Unstable (reactive) gas	Gaseous									
	4 or 3 detonable	1	NA	NA	10[d,j]	NA	NA	10[d,j]	NA	NA
	3 nondetonable	2	NA	NA	50[d,e]	NA	NA	50[d,e]	NA	NA
	2	3	NA	NA	750[d,e]	NA	NA	750[d,e]	NA	NA
	1	NA	NA	NA	NL	NA	NA	NL	NA	NA
Unstable (reactive) gas	Liquefied									
	4 or 3 detonable	1	NA	NA	(1)[d,j]	NA	NA	(1)[d,j]	NA	NA
	3 nondetonable	2	NA	NA	(2)[d,e]	NA	NA	(2)[d,e]	NA	NA
	2	3	NA	NA	(150)[d,e]	NA	NA	(150)[d,e]	NA	NA
	1	NA	NA	NA	NL	NA	NA	NL	NA	NA
Corrosive gas	Gaseous	4	NA	NA	810[d,e]	NA	NA	810[d,e]	NA	NA
	Liquefied		NA	NA	(150)[d,e]	NA	NA	(150)[d,e]	NA	NA
Highly toxic gas	Gaseous	4	NA	NA	20[e,k]	NA	NA	20[e,k]	NA	NA
	Liquefied		NA	NA	(4)[e,k]	NA	NA	(4)[e,k]	NA	NA
Toxic gas	Gaseous	4	NA	NA	810[d,e]	NA	NA	810[d,e]	NA	NA
	Liquefied		NA	NA	(150)[d,e]	NA	NA	(150)[d,e]	NA	NA

NA: Not applicable within the context of NFPA 55 (refer to the applicable building or fire code for additional information on these materials).
NL: Not limited in quantity.
Notes:
(1) For use of control areas, see Section 6.2.
(2) Table values in parentheses or brackets correspond to the unit name in parentheses or brackets at the top of the column.
(3) The aggregate quantity in use and storage is not permitted to exceed the quantity listed for storage. In addition, quantities in specific occupancies are not permitted to exceed the limits in the building code.
[a]Measured at NTP [70°F (20°C) and 14.7 psi (101.3 kPa)].
[b]None allowed in unsprinklered buildings unless stored or used in gas rooms or in approved gas cabinets or exhausted enclosures, as specified in this code.
[c]With pressure-relief devices for stationary or portable containers vented directly outdoors or to an exhaust hood.
[d]Quantities are permitted to be increased 100 percent where stored or used in approved cabinets, gas cabinets, exhausted enclosures, gas rooms, as appropriate for the material stored. Where Footnote e also applies, the increase for the quantities in both footnotes is permitted to be applied accumulatively.
[e]Maximum quantities are permitted to be increased 100 percent in buildings equipped throughout with an automatic sprinkler system in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems*. Where Footnote d also applies, the increase for the quantities in both footnotes is permitted to be applied accumulatively.
[f]Flammable gases in the fuel tanks of mobile equipment or vehicles are permitted to exceed the MAQ where the equipment is stored and operated in accordance with the applicable fire code.
[g]See NFPA 58, *Liquefied Petroleum Gas Code*, for requirements for liquefied petroleum gas (LP-Gas). LP-Gas is not within the scope of NFPA 55.
[h]Additional storage locations are required to be separated by a minimum of 300 ft (92 m).
[i]In mercantile occupancies, storage of LP-Gas is limited to a maximum of 200 lb (91 kg) in nominal 1 lb (0.45 kg) LP-Gas containers.
[j]Permitted only in buildings equipped throughout with an automatic sprinkler system in accordance with NFPA 13.
[k]Allowed only where stored or used in gas rooms or in approved gas cabinets or exhausted enclosures, as specified in this code.

6.4.6. Flammable Gases: The following general requirements for storage of flammable gases shall apply:

6.4.6.1. The storage location of non-liquefied flammable gas cylinders in buildings shall be determined by the total volume of flammable gas and shall be in the order of preference as indicated by NFPA 55.

6.4.6.2. Storage of compressed flammable gases in other than industrial/mercantile and storage occupancies shall not exceed the quantities listed in Table 6.4 (above). Storage of compressed flammable gases in mercantile and business occupancies shall be limited to 400 SCF (11.3 Sm3). Storage of liquefied flammable gases in all occupancies shall be in accordance with NFPA 55, *Compressed Gas and Cryogenic Fluids Code*, Chapter 7 and NFPA 58, *Standard for Storage and Handling of Liquefied Petroleum Gases.*

6.4.6.3. Electrical equipment shall conform to the provisions of NFPA 70, National Electric Code, and Article 501 for Class I, Division 2 locations.

6.4.6.4. Smoking and open flames shall not be permitted in storage areas or within 20 ft. (6.1 m) of storage areas.

6.4.6.5. Gas cylinders shall be stored a minimum distance of 20 ft. (6.1 m) from storage of flammable and combustible liquids and solids.

6.4.6.6. Liquefied flammable gas cylinders shall be stored in the upright position or such that the pressure relief valve is in direct communication with the vapor space of the cylinder.

6.4.6.7. Storage of multiple groups of cylinders of flammable gases, each 2500 SCF (70.79 Sm3) or less, in one fire area shall be permitted where the groups are separated by a minimum distance of 100 ft. (30.5 m) (for exceptions see NFPA 55).

6.4.6.8. Different flammable gases shall be permitted to be stored together in a group.

6.4.6.9. The following requirements shall apply to the storage of flammable gases between 2501 SCF (70.82 Sm^3) and 5000 SCF (141.6 Sm^3) in any fire area:

6.4.6.9.1. Gas cylinders shall be stored in a room or enclosure with a minimum one-hour fire resistance rating. (For exceptions see NFPA 55).

6.4.6.9.2. Multiple groups of cylinders within one sprinkler fire area shall be permitted where a minimum distance of 100 ft. (30.5m) separates the groups. (For exceptions see NFPA 55)

6.4.6.10. Gas cylinder storage rooms shall be provided with natural or mechanical ventilation designed to provide a minimum of one cubic feet per-minute (cfm) per square feet (0.3 m^3/m^2) of floor area. Ventilation systems shall discharge a minimum of 50 ft. (15m) from the intakes of air handling systems, air conditioning equipment and air compressors.

6.4.6.11. The following requirements shall apply to the storage of greater than 5000 SCF (141.6 Sm^3) of flammable gases in any location: Gas cylinders shall be stored in a room or enclosure with a minimum fire resistance of two hours. At least one wall of the room shall be an exterior building wall.

6.4.6.11.1. Gas cylinder storage rooms shall be provided with a sprinkler system design in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems.* The sprinkler density of at least 0.30 gallons per minute (gpm) per square feet (0.3 m^3/m^2) of floor area will be maintained. Ventilation systems shall be discharged a minimum of 50 ft (15 m) from intakes of air handling systems, air conditioning equipment and air compressors.

6.4.7. Toxic Gases: In addition to the requirements of section 6.4.5. of this RAFBI, the following specific requirements for storage of toxic gases shall apply:

6.4.7.1. Indoor storage areas used to store toxic gases shall be equipped with a continuous gas detection system that provides an alarm to warn of the presence of toxic gases in levels that present a hazard to life (for exceptions see NFPA 55).

6.4.7.2. Exhaust ventilation systems shall be installed in all indoor areas used for toxic gases (for exceptions see NFPA 55).

6.4.7.3. Exhaust ventilation systems for indoor toxic gas storage shall comply with the following, except where natural ventilation prevents toxic accumulation of gases being stored:

6.4.7.3.1. Where gas cabinets are not used, mechanical ventilation shall be operated continuously at a rate of not less than one cfm per square feet (0.3 m^3/m^2) of floor area of the storage area. (For exceptions see NFPA 55).

6.4.7.3.2. A manual ventilation shutoff shall be provided outside the room adjacent to the access door into the room in a location approved by the authority having jurisdiction. The switch shall be labeled "Ventilation System Emergency Shut-off."

6.4.7.3.3. Exhaust ventilation shall not be re-circulated within a room or building.

6.4.7.3.4. Ventilation shall not be required to be operated when no toxic gas is stored.

6.4.7.4. Outdoor storage of toxic gases shall be located 75 ft. (22 m) from a line of property that may be built upon public ways; i.e., places of public assembly and buildings not associated with the manufacturer or use of the gases in storage. Such storage areas shall be secured from unauthorized access.

6.4.7.5. Cylinders of toxic gases while in storage and while being handled shall have valve protection devices or caps and gas-tight valve outlet caps or plugs in place. This shall apply to all cylinders whether full, partially full or empty.

6.4.7.6. Health 4 Storage Requirements. User locations storing toxic gases with an NFPA 704 health hazard rating of 4 shall meet the following requirements.

6.4.7.6.1. Storage within buildings shall be in gas cabinets or exhausted enclosures having positive exhaust ventilation.

6.4.7.6.2. When storage is not in buildings, at least one gas cabinet or exhausted enclosure shall be provided for the handling of leaking cylinders. The cabinet or enclosure shall be located within or adjacent to the outdoor storage area.

6.4.7.6.3. Gas cabinets or exhausted enclosures shall be connected to treatment systems.

6.4.7.7. Health 3 Storage Requirements. User locations storing toxic gases with an NFPA 704 health hazard rating of 3 shall have equipment to prevent leaking cylinders from escaping into the building or atmosphere on site or readily available.

6.4.8. Hazard Identification:

6.4.8.1. Hazard identification signs shall be placed at all entrances to locations where compressed gases are produced, stored, used or handled (for exceptions see NFPA 55).

6.4.8.2. Signs shall not be obscured or removed. Signs shall be in English as a primary language or in symbols.

6.4.8.3. Signs prohibiting smoking or open flames within 50 ft. shall be provided in areas where toxic, flammable, oxidizing or pyrophoric gases are produced, handled, stored or used.

6.4.8.4. Individual compressed gas cylinders shall be marked or labeled in accordance with DOT and OSHA/AF requirements.

6.4.8.5. The labels applied by the gas manufacturer or base hydrostatic testing shop to identify the compressed or liquefied gas cylinder contents shall not be altered or removed by the user except for the marking of empty cylinders by tearing one of the attached tags in half.

6.4.9. Compressed Gas Cylinders, General Requirements:

6.4.9.1. Cylinders shall be designed, fabricated, tested and marked (stamped) IAW regulations of the US (DOT), Transport Canada (TC) or the Rules for the Construction of Unfired Pressure Vessels, Section VIII, The American Society of Mechanical Engineers (ASME), *Boiler & Pressure Vessel Code.*

6.4.9.2. Defective cylinders shall be returned to the supplier. Suppliers shall repair the cylinder and remove it from service or dispose of it in an approved manner.

6.4.9.3. Compressed gas cylinders having residual products shall be treated as full except when being examined, serviced or refilled by a gas manufacturer or distributor.

6.4.9.4. Where compressed gas cylinders are designed to accept valve protection caps, the user shall keep such caps on compressed gas cylinders at all times except when being filled or connected for use.

6.4.9.5. Where gas tight valve outlet caps are provided, the user shall keep such devices on the valve outlet at all times except when being filled or connected for use.

6.4.9.6. Compressed or liquefied gas cylinders in use or in storage shall be secured in an appropriate manner to prevent them from falling or being knocked over (for exceptions see NFPA 55.)

6.4.9.7. Compressed gas cylinders shall be permitted to be stored and used in the horizontal position. All liquefied gas cylinders or gas in solution cylinders (acetylene) shall only be stored and used in the upright position (excluding Liquid Proteome Gas powered forklifts).

6.4.9.8. Compressed gas cylinders exposed to fire shall not be used until they are re-qualified IAW the pressure vessel code under which they were manufactured.

6.4.9.9. Compressed gas cylinders shall not be placed where they can become a part of an electrical circuit.

6.4.9.10. Compressed gas pesticides/poisons (not including aerosols) shall be stored away from heat (steam pipes, heaters, direct sun) in a covered area outdoors.

6.4.9.11. Cylinders shall be tightly closed, provided with a safety cap when not in use (whether full or empty), and provided with labeling IAW DOT labeling requirements which indicates whether the individual container is full or empty.

6.4.9.12. Cylinders shall be separated by type, contents, and full or empty status. Compressed gas pesticide/poisons shall be separated from other compressed gases by pipe railings or other effective means acceptable to the base Fire Department.

6.4.10. Safety Precautions:

6.4.10.1. Smoking or open flames shall not be permitted within 50 ft. of any area where flammable, oxidizing, pyrophoric or toxic compressed gases are stored.

6.4.10.2. Where flammable gas may be ignited by static electricity. Means shall be provided to prevent a static discharge.

6.4.10.3. Electrical equipment and wiring in areas where flammable gases are produced, stored, handled or used shall be installed IAW the provisions of NFPA 70, *National Electrical Code.*

6.4.10.4. Separate rooms and areas of buildings for use or storage of toxic or pyrophoric gases shall be protected by an automatic fire extinguishing system IAW NFPA 13, *Standard for the Installation of Sprinkler Systems*, or NFPA 15, *Standard for Water Spray Fixed Systems for Fire Protection.*

6.4.10.4.1. A fire alarm activation station or approved emergency signal device shall be installed adjacent to exit doors of buildings and outside of rooms or areas where the toxic, pyrophoric or flammable gases are used or stored. Activation of the system shall sound a local alarm.

6.4.10.5. Where mechanical ventilation, treatment systems, temperature control, manual alarm, detection or other electrically operated systems are required by other provisions of this standard, such systems shall be connected to a standby source of power to automatically supply power in the event of loss of power from the primary source.

6.5. Corrosives and Oxidizers:

6.5.1. For the purposes of this RAFBI, corrosive materials are defined as a liquid or solid that cause full thickness destruction of human skin at the site of contact within an exposure period of four hours, or a liquid that has a severe corrosion rate on steel or aluminum based on the criteria in 49 CFR 173.137(c) (2). Corrosives are divided into two groups, acids and bases. Acids refer to the end of the pH scale, which is from 6 down to 0 and bases; have pHs which range from 8 to 15. Oxidizers are defined as materials other than a gas, which may, generally by yielding oxygen, cause or enhance the combustion of other materials. Organic peroxides are defined as any material, other than a gas, that contains Oxygen (O) in the bivalent -O-O- structure and which may be considered a derivative of hydrogen peroxide, where one or more of the hydrogen atoms have been replaced by organic radicals.

6.5.2. Corrosives and oxidizers shall be located, stored, utilized and transported IAW NFPA 430, *Code for the Storage of Liquid and Solid Oxidizers,* NFPA 45, *Standard on Fire Protection for Laboratories Using Chemicals,* 49 CFR parts 171-180, *The Hazardous Materials Regulations,* 29 CFR 1910.104, *Oxygen,* 105, *Nitrous Oxide,* AFI 91-203 and this RAFBI.

6.5.3. Oxidizers are divided into two sub-classes by the DOT. They are as follows:

6.5.3.1. Division 5.1 - Oxidizers.

6.5.3.2. Division 5.2 - Organic Peroxides.

6.5.3.3. Corrosives are all included in the DOT hazard class of 8.0.

6.5.3.4. For the purpose of this RAFBI, oxidizers and organic peroxides shall be classified according to the system described in the following section:

6.5.3.4.1. Class 1: An oxidizer whose primary hazard is that it slightly increases the burning rate but does not cause spontaneous ignition when it comes in contact with combustible materials (Generic Type G).

6.5.3.4.2. Class 2: An oxidizer that will cause a moderate increase in the burning rate or that causes a spontaneous ignition of combustible materials with which it comes in contact (Generic Types E and F).

6.5.3.4.3. Class 3: An oxidizer that will cause a severe increase in the burning rate of a combustible material with which it comes in contact or that will undergo vigorous self-sustained decomposition due to contamination or exposure to heat (Generic Types C and D).

6.5.3.4.4. Class 4: An oxidizer that can undergo an explosive reaction due to contamination or exposure to thermal or physical shock. In addition, the oxidizer will enhance the burning rate and can cause spontaneous ignition of combustibles (Generic Types A and B).

6.5.3.4.4.1. For a listing of typical oxidizers in the above classes see NFPA 430, Appendix B.

6.5.4. Buildings used to store corrosives and oxidizers shall comply with the following requirements:

6.5.4.1. Ventilation will be provided by means of permanent louvered openings at floor level and ceiling levels, other accepted gravity ventilation methods, or mechanical ventilation suitable for the location, at a rate of not less than one cfm per square feet (0.3 m^3/m^2) of floor area of the storage area.

6.5.4.2. Electrical installation may be for general purpose areas and shall conform to the requirements of NFPA 70, *National Electric Code*.

6.5.5. Different acids will be stored separately in designated areas. In lieu of aisle space, non-combustible barriers up to a minimum of 3 ft high and sealed at the floor level may be used to obtain maximum storage space.

6.5.6. The arrangement and quantity of oxidizers in storage shall depend upon their classification, type of container, type of storage (segregated, cutoff, or detached), and fire protection as requirements as specified in NFPA 430.

6.5.7. Corrosives and oxidizers shall be stored to avoid contact with incompatible materials such as ordinary combustibles, combustible or flammable liquids, greases and those materials that could react with the corrosive or oxidizer, promote, or initiate their decomposition. These shall not include approved packaging materials, pallets or dunnage. Corrosives and oxidizers stored in plastic drums shall only be stored on heavy plastic or nylon type pallets. Wood pallets are not permitted for this use:

6.5.8. Special care shall be taken to prevent any contamination of corrosives or oxidizers in storage.

6.5.9. Where oxidizers and corrosives are stored in segregated warehouses with flammable liquids, the oxidizer and corrosive containers and flammable liquid drums/containers shall be separated by at least 25 ft (7.6m). The separation shall be maintained by dikes, drains, or floor slopes to prevent flammable liquid leakage from encroaching on the separation.

6.5.10. Where Class 2, Class 3, or Class 4 liquid oxidizers are stored, means shall be provided to prevent the liquid oxidizer from flowing out of a cut-off area into an area containing incompatible materials.

6.5.11. All storage areas containing corrosives and/or oxidizers shall be conspicuously identified by the words "CORROSIVES" or "CLASS __ OXIDIZERS". If different classes of oxidizers are stored in the same area, the area shall be marked for the most severe hazard class present.

6.5.12. All packages shall be approved and individually marked with the chemical name of the corrosive or oxidizer. All original shipping labels, to include DOT labels, shall be affixed to the container and shall be legible at all times.

6.5.13. Tanks and Bins: Tanks and bins used for the storage of bulk solid corrosives or oxidizers shall meet the following requirements:

6.5.13.1. Materials of construction shall be compatible with the corrosive or oxidizer being stored.

6.5.13.2. Tanks and bins shall be designed and constructed IAW federal, state and local regulations.

6.5.13.3. Tanks and bins shall be equipped with an adequately sized vent or other relief device to prevent over pressurization due to decomposition or fire exposure.

6.5.14. Bulk Liquid Storage: Bulk liquid storage is defined as the storage of more than 600 gallons (US) (2271 L) in a single container. All bulk liquid storage tanks shall be installed, labeled, serviced and maintained IAW federal, state and local regulations.

6.5.15. Bulk Solid Storage: Bulk solid storage is defined as the storage of more than 6000 lbs (2722 kg) in a single container. All bulk solid storage containers shall be installed, labeled, serviced and maintained IAW federal, state and local regulations.

6.5.16. Retail Storage of Oxidizers and Corrosives:

6.5.16.1. Shelves and vertical barriers shall be placed between incompatible materials and shall be solid and of noncombustible construction.

6.5.16.2. Solid oxidizers and corrosives shall not be stored directly beneath incompatible liquids.

6.5.16.3. Shelves shall be no greater than 24 inches (61 cm) deep.

6.5.16.4. Storage shall be no greater than six feet (1.8 m) high.

6.5.16.5. The total amount of all corrosives and oxidizers in all classes shall be limited to two tons (1814 kg) in non-sprinklered areas and four tons (3630 kg) in sprinklered areas. Sprinklers shall be designed for the most severe oxidizer class stored.

6.5.16.6. The quantities provided for sprinklered retail sales areas shall be permitted to be applied to a maximum of two sales areas within one retail sales store if the two retail sales areas are separated from each other by a fire partition having at least a 1-hour fire resistance rating.

6.5.17. Where two or more different classes of oxidizers are stored in the same segregated, cut-off or detached area, the maximum quantity permitted for each class shall be limited to the sum of the maximum proportion permitted for that class. The total of the proportional amounts shall not exceed 100 percent.

6.5.18. Heating and Electrical Installations:

6.5.18.1. Heating shall be arranged so that stored materials cannot be placed in direct contact with heating units, piping, or ducts and corrosives or oxidizers shall be separated so that they cannot be heated to within 25°F (14°C) of their decomposition temperature/boiling point or to 120°F (49°C), whichever is lower.

6.5.18.2. Electrical installations shall be in conformance with NFPA 70, *National Electrical Code* for ordinary wiring locations.

6.5.19. Maintenance and Repairs:

6.5.19.1. The performance of maintenance work in an oxidizer/corrosive storage area shall be subject to prior review and approval by supervisory personnel and the base Fire Emergency Services.

6.5.20. Fire Extinguishing Equipment:

6.5.20.1. Manual firefighting equipment in the form of portable water extinguishers or water hose reels stations or cabinets shall be provided IAW the requirements of NFPA 10, *Standard for Portable Fire Extinguishers*, and NFPA 14, *Standard for the Installation of Standpipe and Hose Systems, and UFC 3-600-01*.

6.5.20.2. The placement and use of dry chemical extinguishers containing ammonium compounds (Class A,B,C) shall be prohibited in areas where oxidizers/corrosives that can release chlorine are stored.

6.5.20.3. Halon extinguishers shall not be used in areas where oxidizers/corrosives are stored.

6.5.21. Housekeeping and Waste Disposal:

6.5.21.1. Accumulation of combustible waste in oxidizer/corrosive storage areas shall be prohibited.

6.5.21.2. Spilled oxidizers/corrosives and leaking or broken containers shall be removed immediately to a safe area if this can be done safely. If in doubt notify the base Fire Department via 911 to initiate emergency response actions.

6.5.21.3. Used, empty, combustible containers shall be stored in a detached or sprinklered area.

6.5.21.4. Operations shall be arranged to prevent excessive fugitive dust accumulation.

6.5.21.5. When absorptive combustible packing materials used to contain water soluble oxidizers and corrosives have become wet during either fire or non-fire conditions, the oxidizer/corrosive can impregnate the packing material. This will create a serious fire hazard when the packing material dries. Wooden pallets that are exposed to water solutions of an oxidizer/corrosive also can exhibit this behavior. Such materials shall be relocated to a safe outside area and shall be disposed of properly. Contact the Environmental Management Flight (78 CEG/CEIER) for disposal instructions.

6.6. Pesticides and Poisons:

6.6.1. For the purpose of this RAFBI, "pesticide" means any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest or for use as a plant regulator, defoliant or desiccant. A "restricted use pesticide" is as classified under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) in 40 CFR, part 152.175, *Pesticides Classified for Restricted Use*. These pesticides shall be permitted to be purchased and applied by applicators that are certified and licensed in accordance with the United States Environmental Protection Agency regulations.

6.6.2. For the purpose of this RAFBI, "poisonous materials" means a material, other than a gas, which is known to be so toxic to humans as to afford a hazard to health during transportation and storage, or which, in the absence of adequate data on human toxicity, is presumed to be toxic to humans because it falls within any one of the following categories when tested on laboratory animals.

6.6.3. Pesticides and poisons shall be stored, handled and transported on this installation IAW NFPA 434, *Code for the Storage of Pesticides*, NFPA 55, *Compressed Gases And Cryogenic Fluids Code,* 49 CFR, parts 100-179, and this RAFBI.

6.6.4. Hazard Management:

6.6.4.1. No construction or significant modification shall be made to a pesticide/poison storage facility unless the construction/modification plans are reviewed by the Fire Prevention Section. This includes self-help work.

6.6.4.2. All storage facilities shall develop a hazardous materials emergency response plan for this type of facility prior to any materials being stored. This plan will include review by the base Fire Emergency Services, Fire Prevention section initially and annually thereafter.

6.6.4.2.1. The emergency response plan shall designate an emergency response coordinator. The coordinator shall be responsible for implementing the emergency response plan and coordinating with outside agencies.

6.6.4.2.2. Equipment and materials necessary for implementing the emergency response plan shall be available and accessible.

6.6.4.2.3. The base Fire Emergency Services shall be notified via 911 immediately after any unintentional release of a pesticide or poison that may pose a threat to people, property, or the environment, and/or that exceeds the capability of the facility to manage the release.

6.6.4.2.4. The facility/organization responsible for the release shall activate the emergency response plan immediately.

6.6.4.2.5. No organization shall close or abandon any pesticide/poison storage area without notifying the Fire Emergency Services at least 30 days prior to the scheduled closing date.

6.6.5. Housekeeping:

6.6.5.1. Accumulation of combustible waste materials in pesticide/poison storage areas is prohibited.

6.6.5.2. Unusable Goods: The disposition of unusable goods shall be permitted IAW the manufacturer's recommendations and the pesticide/poison label directions; disposal IAW DLA and Federal EPA regulations or returned to the manufacturer if possible. These materials shall be segregated until disposition.

6.6.5.3. Pesticide/Poison contaminated materials shall be disposed of or decontaminated IAW appropriate federal, state, and local regulations as specified by the manufacturer's instructions.

6.6.5.4. Leaking or damaged containers of pesticides shall be corrected immediately. Corrective actions shall include, if they can be done safely, over-packing or repackaging or other approved methods. Over packed material shall be segregated and stored until final disposition in accordance with the recommended disposal directions from Environmental Management Directorate or DLA-Disposition Services.

6.6.5.5. Contaminated pallets shall be disposed of with other pesticide/poison contaminated materials.

6.6.6. Structures and Buildings:

6.6.6.1. Buildings or portions thereof, in which pesticides/poisons are stored, shall be constructed of noncombustible materials.

6.6.6.2. Floors shall be constructed and maintained to contain and control spillage and fire protection water.

6.6.6.2.1. Floors for pesticide/poison storage areas shall be recessed a minimum of four inches (10 cm) or shall be provided with a liquid-tight seal raised to a minimum height of four inches (10 cm) to prevent the flow of liquid to adjoining areas.

6.6.6.2.2. Pesticide spills and fire protection water shall either be contained inside the facility or directed by a drainage system to outside, secondary containment. The capacity of the system shall be able to accommodate:

6.6.6.2.2.1. The size of the largest pesticide storage container (except when plastic containers are used, the capacity of the drainage system shall be increased to contain the aggregate volume that can be expected to be released under fire conditions).

6.6.6.2.2.2. One-half hour of fire protection water, if applicable.

6.6.6.2.2.3. One hundred year rainfall during a 24-hour period, if outdoors.

6.6.6.3. Any transportation vehicle involved in temporary storage of pesticides or poisons at any one facility for three days or longer shall be provided with secondary containment.

6.6.7. Ventilation:

6.6.7.1. Indoor storage areas and buildings for the storage of pesticides or poisons shall be provided with emergency mechanical exhaust ventilation, which shall be manually actuated upon detecting a spill, leak, or release. The ventilation shall be designed to maintain the concentration below the accepted human exposure levels, or for a minimum of six air changes per hour, whichever method yields the higher number of air changes.

6.6.7.2. The ventilation system shall be designed for exhaust within six inches (15 cm) of the floor level and air makeup above six ft. (1.8 m).

6.6.8. Electrical installations shall be in conformance with NFPA 70, *National Electrical Code.*

6.6.9. The pesticide/poison storage areas shall be illuminated as necessary to allow ready identification of pesticide container labeling.

6.6.10. Control of Ignition Sources:

6.6.10.1. Smoking shall be prohibited in all storage areas containing pesticides/poisons.

6.6.10.2. "No Smoking" signs shall be placed conspicuously within storage areas and at all entrances to storage areas.

6.6.11. Loading and unloading facilities shall have secondary containment. The secondary containment shall have a liquid-tight floor and shall be sloped or curbed to prevent overflow. This containment shall be permitted to be connected to the drainage system or shall be permitted to be contained at the unloading area.

6.6.12. Hazard Identification. All pesticide/poison storage facilities or rooms shall have a hazard identification system.

6.6.12.1. All pesticide/poison storage areas shall be identified by a sign IAW NFPA 704, *Standard for the Identification of the Hazards of Materials for Emergency Response,* and/or a sign that reads "PESTICIDES" or "POISONS" in black 2-inch (5 cm) minimum letters on a white background shall be posted. The signs shall be located at each entrance/door to an area which stores or uses pesticides/poisons and on all four approaches to the facility, if the entire facility is used for the purpose of storing or

handling pesticides/poisons. Additionally, the signs shall be located as to comply with EPA requirements.

6.6.12.2. Container Labels. Each container shall have a legible Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) label on the outside of the container that is visible from ordinary areas of approach.

6.6.13. Training. Facilities storing pesticides/poisons shall have a training program. The training shall be based on the federal HAZCOM and 29 CFR 1910.1200, OSHA's *Hazard Communication* training program to include current Safety Data Sheets (SDS) and other information supplied by manufacturers.

6.6.14. Storage Requirements:

6.6.14.1. A liquid-tight wall shall separate pesticides/poisons storage from food and personal contact items such as clothing, linens, furniture, animal feeds, and animal health products.

6.6.14.2. Incompatible materials shall not be stored within 25 ft (7.6 m) of pesticide/poison storage areas unless separated by a liquid-tight wall with fire resistance rating of one hour.

6.6.14.3. Pesticides/poisons shall be stored only on the first floor. The base Fire Emergency Services, prior to the storage being permitted, shall approve any other storage or occupancy in a basement below the intended pesticide storage area.

6.6.14.4. Pesticides/poisons shall be stored to prevent harmful and unnecessary contact with moisture, excessive heat, or freeze/thaw cycles, which can affect either container integrity or product stability.

6.6.14.5. Empty, un-rinsed containers shall be treated as full containers.

6.6.14.6. Compressed Gas Pesticides/Poisons:

6.6.14.6.1. Compressed gas pesticides (not including aerosols) shall be stored away from heat (steam pipes, heaters, direct sun) in an outdoor, covered area.

6.6.14.6.2. Containers shall be tightly closed, provided with a safety cap when not in use, whether full or empty, and provided with labeling in accordance with DOT labeling requirements and to indicate whether the individual container is full or empty.

6.6.14.6.3. Containers shall be separated by type, contents, and full or empty status. Compressed gas pesticides/poisons shall be separated from other compressed gases by pipe railings or other effective means acceptable to the Base FES.

6.6.15. Storage Arrangements:

6.6.15.1. Containers shall be stacked stable, and stacks shall be limited in height, based on container integrity.

6.6.15.2. Where an original shipping container has been opened, the individual container shall be placed on stable shelving and tightly re-closed or resealed.

6.6.15.3. Where flammable or combustible pesticides/poisons are stored, storage shall comply with Chapter 7.2 of this RAFBI.

6.6.15.4. Nonflammable pesticides/poisons shall be stored IAW NFPA 231, *Standard for General Storage.*

6.6.15.5. Rack storage of nonflammable pesticides/poisons shall comply with NFPA 231C, *Standard for Rack Storage of Materials.*

6.6.15.6. Bulk storage of flammable and combustible pesticides/poisons shall comply with NFPA 30, *Flammable and Combustible Liquids Code,* and Chapter 7.2 of this RAFBI.

6.7. Radioactive Materials:

6.7.1. For the purpose of this RAFBI, "Radioactive Material" means any material having a specific activity greater than 70 Becquerel per gram (0.002 micro curie per gram) and any material that emits, by spontaneous nuclear disintegration, corpuscular or electromagnetic emanation.

6.7.2. Radioactive materials shall be received, stored, packaged, handled, shipped and disposed of in accordance with Air Force Joint Instruction 23-504, *Radioactive Commodities in DOD Supply System;* MIL STD-129, *Military Marking for Shipment and Storage,* Air Force Manual 24-204_IP, *Preparing Hazardous Materials for Military Air Shipments,* 49 CFR, parts 100-185, OSHA 29 CFR 1910.96-STD_01-04-001, 1910.1096, 29 CFR 1926.53 and this RAFBI.

6.7.3. Storage of radioactive materials:

6.7.3.1. Where containers are used for storage, the labels required by 29 CFR 1910.1096 shall state the quantities and kinds of radioactive materials in the containers and the date of the measurement of the quantities.

6.7.3.2. Rooms or other areas in on-site medical facilities are not required to be posted with caution signs, provided that there are personnel in attendance who shall take the necessary precautions to prevent the exposure of any individual to radiation or radioactive material in excess of the limits established in 29 CFR 1910.1096.

6.7.3.3. Caution signs are not required to be posted at areas or rooms containing radioactive materials for periods less than eight hours; provided that:

6.7.3.3.1. The materials are constantly attended during such periods by an individual who shall take the precautions necessary to prevent the exposure of any individual to radiation or radioactive materials in excess of the limits established in 29 CFR 1910.1096.

6.7.3.3.2. Such area or room is subject to the control of RAFB.

6.7.4. Buildings or rooms containing radioactive substances will be reported to the Base Fire Emergency Services by the building Facility Manager having jurisdiction. The Facility Manager will provide a detailed floor plan drawing indicating the exact location of the material to the Base Fire Emergency Services. Any time the radioactive materials are moved or removed from the facility or area, notifies the base Fire Emergency Services at extension DSN 468-2145 or DSN 468-3487.

6.7.5. Matters not covered by current service/agency directives, RAFBI, or above information should be referred to the local Base Radiological Safety Officer (78 AMDS/SGP) or Safety Office (78 ABW/SEG) for specific instructions/directions.

6.8. Hazardous Cargo:

6.8.1. For the purpose of this RAFBI, "hazardous cargo" is defined as materials which are regulated under the above listed hazard classes and materials which are not regulated under any of the above hazard classes, but is defined as other regulated materials (ORMs) according to 49 CFR, parts 100-179 and is being transferred on the installation. This includes hazardous wastes, consumer quantities of hazardous materials, and materials identified in one of the above listed definitions.

6.8.2. The base Fire Emergency Services will be notified of all, other than routine, proposed transfers of explosives, oil, gasoline, or other hazardous materials as defined above. The following general guidance will be followed:

6.8.2.1. Such transfers will be subject to applicable regulations, installation operating instructions and this RAFBI.

6.8.2.2. All fire precautions will be observed.

6.8.2.3. A fire watch, approved by the base Fire Emergency Services, will be posted and proper fire extinguishing equipment will be provided.

6.8.2.4. Under special or unusual conditions (i.e., hot refuels/defuels, specialized product transfers), firefighters, and apparatus may be required for standby.

6.8.3. The base Fire Emergency Services shall be notified when a contract is left to remove bulk hazardous waste shipments (i.e., sludge removal from waste treatment plants) from or transport on this installation. This notification shall be given at least five working days in advance of the start of the contract at extension DSN 468-2145.

6.8.4. Shipments of bulk goods, which are received through the Enterprise Environmental, Safety & Occupational Health Management Information System (EESOH-MIS) or consumer quantities of hazardous materials received through the Base Exchange or Commissary, are exempt from the above requirements of this section.

6.8.4.1. Any time that a shipment of hazardous materials is received or transferred on this installation, the following precautions will be followed:

6.8.4.2. The receiver and shipper of the material will inspect the packaging to ensure that it is in a serviceable condition and that it is properly secured to the pallet if one is provided. If the package is found to be leaking, do not load or unload the material, secure the area, perform immediate area evacuation and notify the base Emergency Communications Center (ECC) via 911 to report the incident.

6.8.4.3. The shipper/expediter will ensure that the material being transported is in a serviceable condition, the material is secured to the shipping pallet, if provided, and that the material is properly secured to the vehicle.

6.8.4.4. The organizational personnel receiving the material will inspect the shipment for serviceable container conditions and that the material is the proper material ordered. If the material is found to be defective or leaking, the driver of the vehicle and the receiving

personnel shall secure the area. The vehicle containing the defective/leaking material shall not be moved. Notify the base ECC via 911 to report the incident. When possible, have the shipping paperwork and any SDS' for the material immediately available for responding Fire Department personnel.

6.9. Petroleum, Oil and Lubricants (POL) Storage Areas:

6.9.1. For the purpose of this RAFBI, POL storage areas are defined as areas that are used for the bulk storage of petroleum, oil or lubricant materials and fueling operations from a bulk source, such as gasoline stations and bulk refueling vehicles.

6.9.2. Bulk storage, transportation, transfer, handling and inspection of POL products/areas will be performed in accordance with NFPA 30, *Flammable and Combustible Liquids Code;* AFI 91-203, **Chapter 22**, *Flammable and Combustible Liquids;* NFPA 385, *Standard for Tank Vehicles for Flammable and Combustible Liquids;* NFPA 386, *Standard for Portable Shipping Tanks for Flammable and Combustible Liquids;* AFI 91-203, **Chapter 20**, *Safety Color Coding, Labeling and Marking for Piping Systems;* 29 CFR 1910.106; applicable AF Technical Orders and this RAFBI.

6.9.3. Protection Requirements:

6.9.3.1. Bonding facilities for protection against static sparks during the loading and unloading of tank vehicles through open domes shall be provided where flammable and combustible liquids are transferred. NOTE: NFPA 77, *Recommended Practice on Static Electricity,* and T.O. 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding,* provide additional information on static electricity protection.

6.9.4. Liquid handling, transfer and use. The following criteria will apply to POL storage areas:

6.9.4.1. Flammable and combustible liquids shall be kept in closed tanks or containers, except when being transferred or in use.

6.9.4.2. Where liquids are used or handled, provisions shall be made to promptly and safely confine and dispose of leaks or spills.

6.9.5. Piping, valves and fittings shall be in accordance with **Chapter 3**, "Piping Systems", of NFPA 30.

6.9.6. Equipment shall be designed and arranged to prevent the unintentional escape of liquids and vapors and to minimize the quantity escaping in the event of accidental release.

6.9.7. Fire Prevention and Fire Extinguishing Equipment:

6.9.7.1. Welding, cutting and similar spark-producing operations shall not be permitted in areas containing flammable liquids until an AF Form 592, *USAF Welding, Cutting and Brazing Permit,* is issued by the base Fire Emergency Services to authorize such work.

6.9.7.2. Maintenance and operating practices shall control leakage and prevent spillage of flammable and combustible liquids.

6.9.7.3. Combustible waste materials and residues in operating areas shall be kept to a minimum, stored in covered metal containers, and disposed of at least daily.

6.9.7.4. Ground areas around POL facilities where liquids are stored, handled, or used shall be kept free of grass, weeds, trash, or other unnecessary combustible materials. Mangers of POL areas will ensure grass and weed control schedules are performed with the base grounds contractor.

6.9.7.5. Aisles established for movement of personnel shall be maintained clear of obstructions to permit orderly evacuation and ready access for manual firefighting activities.

6.9.7.6. Personnel responsible for the use and operation of fire protection equipment shall be trained at least annually in the use of the equipment.

6.9.7.7. Procedures shall be established to provide for safe shutdown of operations under emergency conditions. Provisions shall be made for periodic training, inspection and testing of associated alarms, interlocks and controls.

6.9.7.8. Facility and area Managers of POL areas shall inspect fire protection equipment monthly and keep a written or automated product record of the inspections.

6.10. Miscellaneous Requirements:

6.10.1. This section is presented to provide guidance on miscellaneous procedures and practices related to hazardous materials acquisition, storage, and processing, waste disposal and chemsite operations.

6.10.2. Hazardous Materials Management:

6.10.2.1. All hazardous materials ordered on RAFB shall be ordered through the EESOH-MIS or equivalent, AF approved system. Acquisition of new hazardous materials to a process or area shall be performed using the Robins Hazardous Materials Cell Sheet/modified AF Form 3952, *Chemical/Hazardous Material Request Authorization*. Approval from the Base Safety Office, Environmental Management Flight, Bioenvironmental Engineering Flight, as well as final approval from the Hazardous Materials Cell, shall be obtained prior to ordering any new hazardous material.

6.10.2.2. All areas requesting/ordering hazardous materials will first ensure that the material is not located on this installation in warehousing or DLA-Disposition Services prior to ordering the material. This action is necessary to prevent the accumulation of hazardous materials in storage that may become out of date.

6.10.2.3. When a new material is received into inventory, the responsible agency shall have available an SDS for the product, either in hard copy form or on automated products. This information shall be immediately available for use by the base Fire Emergency Services in the event of a spill or unintentional release.

6.10.2.4. Hazardous materials, when not in use, shall be stored in Hazardous Distribution Supply Centers (HDSCs) or other designated areas only. HDSCs shall use the guidance provided in this RAFBI and other pertinent regulations for the materials they are storing.

6.10.2.5. HDSCs shall be arranged so as to not block exits or paths of egress from the room or area. HDSC managers shall be knowledgeable of hazardous materials regulations and procedures affecting the materials they are issuing.

6.10.2.6. HDSCs will not store more hazardous materials within their area than allowed by permanent sections of this OI or other applicable regulations. HDSCs will also ensure segregation of incompatible materials to the greatest extent possible.

6.10.3. Chemsites, Initial Accumulation Points and Satellite Sites:

6.10.3.1. All personnel who manage chemsites, initial accumulation points or satellite sites shall be trained in hazardous materials/hazardous waste procedures by attending or completing the base hazardous waste or chemical manager's courses. All personnel who handle hazardous wastes shall be trained on Air Force hazardous waste collection, turn-in and disposal procedures.

6.10.3.2. General chemsites guidance:

6.10.3.2.1. The chemsite manager will ensure that all fire extinguishers are inspected annually. The extinguisher is due one year from the date indicated on the punched tag. If the extinguisher requires inspection, refer to 4.3 of this RAFBI for inspection checklist and extinguisher maintenance facility location/information.

6.10.3.3. General Chemsite Inspection Criteria:

6.10.3.3.1. Ensure flammable/combustible liquid drums are grounded and bonded properly.

6.10.3.3.2. If drum pumps are utilized, ensure they are properly installed into the drum and that hoses are retained in the hose holders, i.e., not lying on the floor.

6.10.3.3.3. Ensure that drum funnels on hazardous waste drums are removed and the drum bung is reinstalled after each use. The newer type of drum funnel with the internal drum plug is acceptable as long as the drum plug is replaced and tightened and the lid secured after each use.

6.10.3.3.4. Ensure that all containers are in a serviceable condition and that they are not corroded, swollen, or severely damaged.

6.10.3.3.5. Ensure all drums and containers are properly labeled as to contents and that start date, if applicable, is on the container.

6.10.3.3.6. Ensure that proper transfer devices are utilized for the material being transferred (compatible).

6.10.3.3.7. Keep chemsites free of trash and combustibles that are not necessary.

6.10.3.3.8. Ensure that grass and weeds around chemsites remain trimmed. Coordinate this activity with the base grounds contractor as necessary.

6.10.3.3.9. Ensure that the main drain valve on the beam surrounding a chemsite is kept in the closed position, unless draining off excess rainwater or is being utilized to remove chemicals. The drain valve shall only be allowed to be open when the site is supervised.

6.10.3.3.10. Ensure that signs on the outside and inside of the chemsite are in good repair, i.e., "Flammable No Smoking" signs, chemsite manager listing and emergency phone numbers, as well as material location signs.

6.10.4. Chemical Compatibilities:

6.10.4.1. If there are questions as to compatibility of stored materials, call Bioenvironmental Engineering Flight at 497-7555 or the base Fire Emergency Services at DSN 468-2145.

6.10.4.2. Ensure that materials of different types and hazardous wastes are properly labeled and stored accordingly.

6.10.5. Satellite Sites:

6.10.5.1. Ensure that satellite site drums are properly labeled and that the site license and spill plan are posted in proximity to the drums.

6.10.5.2. When possible, ensure that the drums are stored off of the floor or ground on pallets or other suitable means, preferably on spill containment pallets (pallets or spill containment pallets for satellite sites are not required but are suggested as a Best Management Practice).

6.10.5.3. Ensure that the drums remain "closed" when not actually adding material to them. Spring loaded or the "easy open" lids on rag, aerosol can and other approved solid accumulation containers are permissible. NOTE: When adding aerosol cans to drum, remove the cap and dispensing nozzle prior to placing in drum if not puncturing the cans.

6.10.5.4. Keep area around drums free from accumulation of trash or debris.

6.10.5.5. Plastic drums with lids or "easy open" lids are permissible for the storage of contaminated rags as part of the rag recycling program.

Chapter 7

SPECIAL OPERATIONS

7.1. Airfield Operations:

7.1.1. Power units, when hooked and serving an aircraft, will have a qualified attendant observing the unit at all times while running.

7.1.2. A fire extinguisher will be located near all power units while running.

7.1.3. Ground power equipment will be operated IAW applicable directives.

7.2. Services Station/Fueling Operations:

7.2.1. Service station/fueling operations shall be IAW NFPA 1, NFPA 54 and NFPA 30A.

7.2.2. Fueling of powered equipment or the dispensing of any flammable liquid shall be conducted outside of all structures (inside fueling is prohibited).

7.2.3. Only UL Listed or FM approved safety containers will be authorized for use. Filling of portable gas containers shall only be performed while setting on the ground. Containers will not be filled while setting in the back of pickup trucks or any other vehicle.

7.2.4. Do not use cell phones during dispensing operations.

7.2.5. If re-entry into vehicle is made, make sure you ground yourself from all static electricity prior to touching the gas dispensing handle.

7.2.6. Do not smoke in or around areas where fueling operations are being conducted.

7.3. Welding, Cutting, Brazing and Grinding.

7.3.1. All welding, cutting, brazing and grinding operations shall comply with criteria set forth in AFI Standard 91-203 and NFPA 51B .*Standard for Fire Prevention During Welding, Cutting, and Other Hot Work.*

7.3.2. The Fire Department shall be notified whenever any cutting, welding, brazing and grinding is to be performed outside of an established shop. A qualified Fire Department representative shall inspect the work site prior to starting the operation. The individuals conducting the operation shall provide a minimum 10 lb ABC portable fire extinguisher. Facility extinguishers are not to be used. If the operation is deemed safe, an AF 592 Form, *USAF Welding, Cutting and Brazing Permit*, signed by the inspector, shall be given to the operator. An after duty hours phone number shall be provided by the operator or supervisor. No person at any time shall conduct any cutting, welding, brazing or grinding operation outside of an established properly authorized shop without an approved AF Form 592. Duration of permit shall be established by a qualified Fire Department representative.

7.3.3. Established welding shop locations are initially and periodically (at least annually) inspected for compliance with established guidance for welding shops. If deemed acceptable by Fire Protection, Ground Safety and Bioenvironmental organizations, the shop is given a certificate of compliance which is good until the shop is terminated or disbanded. Certain craftsmen (e.g., Civil Engineering and Plant Services personnel) are trained annually and provided a certificate of training to allow them to issue and track their own AF Form 592s as

well as accomplish required cutting, welding and brazing operations without Fire Protection site approval.

7.4. Confined Spaces:

7.4.1. Anyone conducting any type of work i.e., maintenance, or inspection which requires entry into any confined space shall comply with the Occupational Safety and Health Administration, Code of Federal Regulations 1910.146 *Confined Spaces*, and AFI 91-203.

7.4.2. Prior to entering any permit required confined space, an AF Form 1024, *Confined Spaces Entry Field Permit*, or equivalent shall be filled out and a copy to be kept at the site at all times.

7.4.3. Any confined space entry work, which requires a permit, will be coordinated through the base Safety Office (78 ABW/SE), Bioenvironmental Engineering Flight (78 AMDS/SGPB), and the base Fire Emergency Services (778 CES/CEXFP).

7.4.4. If the permitted entry requires a rescue standby or the need for a rescue team (at the site due to an emergency or known Immediately Dangerous to Life or Health (IDLH) condition), the base Fire Emergency Services will be responsible for providing this service. This applies to RAFB, government employees and entries only.

7.4.5. If a permit required entry is being conducted for routine work or maintenance, the permit originator must ensure rescue team availability during the entry. Originators will contact the base Fire Emergency Services at the time of entry and the time of exit, prior to entry in to the confined space. If during the entry and emergency situation develops that renders rescue services unavailable, the ECC will notify the originator to terminate the entry until emergency services are again available. For these types of entries, contact Base Safety at DSN 468-6271 to coordinate this service at least 24 hours prior to the need.

7.4.6. For specific guidance on confined space entry, consult the Confined Space Program Manager for RAFB. The program manager is available at the Base Safety Office, DSN 468-6271.

7.4.7. Contractors performing Confined Space Entry on RAFB must comply with OSHA, 29 CFR 1910.146 requirements. Robins AFB Fire Emergency Service will not be a "designated rescue team" for contractor entry into confined spaces. However, if an emergency arises contactors must call 911 to report emergencies and response will be initiated as indicated by the callers report.

7.5. Painting Operations:

7.5.1. The use of open flame devices for removing paint from any structure is prohibited.

7.5.2. Flammable thinners, solvents, and cleaners shall be handled, stored, dispensed, and used only in accordance with the regulations pertaining to flammable liquids NFPA 30 and No longer exists. Superseded by AFI 91-203.

7.5.3. Regular spray painting shall not be conducted within buildings unless standard spray booths or rooms constructed and arranged are provided IAW NFPA 33.

7.5.4. Spray booths shall be equipped with an exhaust ventilation system. Fans shall be non-sparking types, with explosion proof fan motors located outside the booth. Exhaust systems shall be installed to conform to the standards of the NFPA 70.

7.5.5. Before refinishing floors, eliminate all sources of ignition, including pilot lights for water heaters and appliances.

7.5.6. Flammable liquids, chemicals, paints, paint-soaked rags, and similar materials shall not be kept in clothing locker

7.5.7. **Aircraft touch up painting guidance and other aircraft preparation/touch up painting shall be conducted IAW T. O. 1-1-3 and T.O. 1-1-8, NFPA 409, and NFPA 410**.

7.6. Tar Pots and Kettles:

7.6.1. Kettles for heating tar, asphalt, and similar materials shall be equipped with proper heat controls and means of agitation to assure controlled uniform temperatures throughout the contents to prevent spot heating. Comply with requirements outlined in NFPA 1.

7.6.2. Tar pots or kettles shall not be operated inside, on the roof, or within 10 ft. of any building, air intake or combustible materials. Tar kettle operations shall be attended by a competent operator at all times. A minimum of two 20 lbs. multi-purpose ABC dry chemical extinguishers shall be provided at the tar pot and at the area of tar application.

7.6.3. When the material is applied within buildings or enclosed areas, the atmosphere shall be free of dust and adequate ventilation provided to completely remove all smoke and fumes.

7.6.4. Prior to leaving the job site, roofing contractors will be responsible to ensure the roof area has been cleaned of combustible materials to include all tar soaked mops, paper and debris. At no time, shall mops soaked with tar be left unattended on the roof.

7.6.5. Smoking shall not be permitted on the roof.

7.7. Model Rockets:

7.7.1. The use of model rockets, utilizing a launcher or model rocket motor designed with a fuse or electronic ignition source shall only be permitted on a hard surface area (i.e. concrete or asphalt).

7.7.2. During severe drought conditions the use of model rockets is prohibited IAW the State of Georgia Forestry Division.

7.8. Tents/Canopies:

7.8.1. Tents and canopies must be noncombustible and certified fire resistant IAW NFPA 1. Tents and canopies shall not be erected in facilities for either temporary or permanent use.

Chapter 8

FIRE SAFETY IN OCCUPANCIES

8.1. Public Assembly:

8.1.1. Public assembly facilities shall establish a sound fire prevention program. Employees shall be trained in fire reporting, facility evacuation, and portable fire extinguisher use. The Facility Manager shall maintain a record of all training.

8.1.2. Managers or assistants shall conduct closing inspections IAW Figure A3.1, Facility Managers Closing Checklist.

8.1.3. Open flame devices used in any assembly occupancy shall meet the following criteria:

8.1.3.1. Candles/gaslights shall be securely supported on a noncombustible surface and away from combustible materials. Flames shall be protected by glass globes.

8.1.4. Portable cooking/warming equipment fueled by small heat sources shall be used IAW manufacture recommendations.

8.1.5. Carpets, curtains, and draperies shall be fire resistant or treated for fire resistance. The Facility Managers shall maintain certification documentation.

8.1.6. Hood and exhaust ducts serving cooking equipment shall be thoroughly cleaned every six months or more frequently when determined by the fire prevention authority. Documentation for cleaning of hood and duct systems must be maintained by the Facility Manager or supervisor. Documentation of the cleaning shall be affixed to the unit.

8.2. Educational/Daycare Facilities:

8.2.1. Fire drills shall be conducted IAW NFPA 101, Life Safety Code and applicable regulations and or other Air Force directives.

8.3. Warehouses:

8.3.1. Access aisles shall be maintained to provide convenient access to all portions of the storage areas. Access aisles shall not be less than eight feet in width.

8.3.2. Cross aisles of not less than four feet in width shall be provided for stacks up to 10 ft. in height. Where stacks exceed 10 ft. in height, cross aisles shall be at least five ft.

8.3.3. Combustible materials, such as excelsior, rags, and shredded paper, shall be stored in fire resistant bins with fusible link or self-closing doors.

8.3.4. Materials shall not be stored under or piled against building doors, exits, or stairways. Combustible materials shall not be stored within 25 ft of any structure.

8.3.5. A 24-inch space shall be maintained between stored combustible materials and interior finish, firewalls and partitions.

8.3.6. Packing materials shall be kept in the original bales until used. Broken bales shall be kept in all metal lined bins with automatic self-closing covers. Waste from packing/unpacking or other sources shall not be allowed to accumulate in hazardous

quantities. All waste shall be removed outside daily at the end of the workday/shift and disposed of in designated containers.

8.4. Battery Shops:

8.4.1. Equipment used in battery shops will conform to the provisions of the NFPA 70, *National Electrical Code.*

8.5. Museums:

8.5.1. The museum director is responsible for ensuring conformance with all life and fire safety requirements IAW NFPA 101, Life Safety Code and NFPA 909, *Code for the Protection of Cultural Resource Properties – Museums, Libraries, and Places of Worship.*

8.5.2. The number of occupants admitted to an event should be monitored and controlled not to exceed the facility occupancy load. The occupant load can be increased with an approved plan. Contact the Fire Prevention Section at DSN 468-2145.

8.5.3. Staff shall be aware of the location of handicapped visitors during an event and shall be able to assist in evacuating them from the building during fire alarm activation.

JEFFREY R. KING, Colonel, USAF
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

29 CFR 1910.101, *Compressed Gases (General Requirements)*

29 CFR 1910.102, *Acetylene*

29 CFR 1910.103, *Hydrogen*

29 CFR 1910.104, *Oxygen*

29 CFR 1910.105, *Nitrous Oxide*

29 CFR 1910.106, *Flammable Liquids*

29 CFR 1910.111, *Storage and Handling of Anhydrous Ammonia*

29 CFR 1910.96-STD_01-04-001, *OSHA Coverage of Ionizing Radiation Sources Not Covered by Atomic Energy Act of 1954*

29 CFR 1910.146, *Permit-Required Confined Spaces*

29 CFR 1910.1096, *Ionizing Radiation*

29 CFR 1910.1200, *Hazard Communication*

29 CFR 1926.53, *Occupational Health and Environmental Controls, Ionizing Radiation*

49 CFR parts 100 to 185, *Code of Federal Regulations, The Hazardous Materials Regulations*

AFJI 23-504, *Radioactive Commodities in DOD Supply System*

AFMAN 24-204_IP, *Preparing Hazardous Materials for Military Air Shipments, 20121203*

AFI 32-2001, *Fire Emergency Services (FES) Program, 20140227*

AFI 32-10141, *Planning and Programming Fire Safety Deficiency Correction Projects, 20150205*

AFPD 32-20, *Fire Emergency Services, 20120621*

AFI 33-364, *Records Disposition – Procedures and Responsibilities, 20150409*

AFMAN 33-363, *Management of Records, 20080301*

AFI 40-102, *Tobacco Free Living, 20150304*

AFI 91-203, *Air Force Consolidated Occupational Safety Instruction, 20120615*

AFMAN 91-201, *Explosives Safety Standard, 20110112*

Compressed Gas Association Pamphlet C-6, *Standard for Visual Inspection of Steel Compressed Gas Cylinders*

Compressed Gas Association Pamphlet C-8, *Standard for Requalification of DOT-3HT, CTC-3HT and TC-3HTM Seamless Steel Cylinders*

MIL STD-129R, *Military Marking for Shipment and Storage, 20140218*

NFPA 1, *Fire Code*

NFPA 10, *Standard for Portable Fire Extinguishers*

NFPA 13, *Standard for the Installation of Sprinkler Systems*

NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*

NFPA 15, *Standard for Water Spray Fixed Systems for Fire Protection*

NFPA 30, *Flammable and Combustible Liquids Code*

NFPA 30A, *Code for Motor Fuel Dispensing Facilities and Repair Garages*

NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials*

NFPA 45, *Standard on Fire Protection for Laboratories Using Chemicals*

NFPA 50A, *Standard for Gaseous Hydrogen Systems at Consumer Sites*

NFPA 51, *Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting and Allied Processes*

NFPA 51B .*Standard for Fire Prevention During Welding, Cutting, and Other Hot Work*

NFPA 55, *Compressed Gases and Cryogenic Fluids Code*

NFPA 58, *Liquefied Petroleum Gas Code*

NFPA 70, *National Electrical Code*

NFPA 77, *Recommended Practice on Static Electricity*

NFPA 96, *Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations*

NFPA 101, *Life Safety Code*

NFPA 231, *Standard for General Storage*

NFPA 231C, *Standard for Rack Storage of Materials*

NFPA 385, *Standard for Tank Vehicles for Flammable and Combustible Liquids*

NFPA 386, *Standard for Portable Shipping Tanks for Flammable and Combustible Liquids*

NFPA 409, *Standard on Aircraft Hangars*

NFPA 410, *Standard on Aircraft Maintenance*

NFPA 430, *Code for the Storage of Liquid and Solid Oxidizers*

NFPA 434, *Code for the Storage of Pesticides*

NFPA 480, *Standard for the Storage, Handling, and Processing of Magnesium Solids and Powders*

NFPA 481, *Standard for the Production, Processing, Handling, and Storage of Titanium*

NFPA 482, *Standard for the Production, Processing, Handling and Storage of Zirconium*

NFPA 484, *Standard for Combustible Metals*

NFPA 495, *Explosive Materials Code*

NFPA 704, *Standard for the Identification of the Hazards of Materials for Emergency Response*

NFPA 909, *Code for the Protection of Cultural Resource Properties – Museums, Libraries, and Places of Worship*

T.O. 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding, Change 21 - 20151231*

T.O. 1-1-3, *Inspection and Repair of Aircraft Integral Tanks and Fuel Cells, Change 19, 20151003*

T.O. 1-1-8, *Application and Removal of Organic Coatings, Aerospace and Non-Aerospace Equipment, Change 15, 20150704*

UFC 3-600-01, *Fire Protection Engineering for Facilities*

UFC 3-600-02, *O&M: Inspection, Testing, and Maintenance of Fire Protection Systems*

Adopted Forms

AF Form 332, *Base Civil Engineering Work Request*

AF Form 592, *USAF Welding, Cutting and Brazing Permit*

AF Form 847, *Recommendation for Change of Publication*

AF Form 1024, *Confined Space Entry Field Permit*

AF Form 1487, *Fire Prevention Visit Report*

AF Form 3952, *Chemical/Hazardous Material Request Authorization*

Abbreviations

AF—Air Force

AFCEC—Air Force Civil Engineer Center

AFMC—Air Force Materiel Command

AFPD—Air Force Policy Directive

AFI—Air Force Instruction

AFMAN—Air Force Manual

ASME—American Society of Mechanical Engineers

ASTM—American Society for Testing and Materials

BDOC—Base Defense Operations Center

°C—Temperature in Centigrade

CFM—Cubic Feet per Minute

CFR—Code of Federal Regulations

CGA—Compressed Gas Association

Chemsite—Chemical Storage Site

DLA—Defense Logistics Agency

DOT—Department of Transportation

DSN—Defense Switched Network

ECC—Emergency Communications Center

EHWAS—Exterior Hazardous Waste Accumulation Site

EPA—Environmental Protection Agency

EESOH-MIS – Enterprise Environmental, Safety & Occupational Health Management System

ETL—Engineering Technical Letter

FES—Fire Emergency Services

FIFRA—Federal Insecticide, Fungicide and Rodenticide Act

FM—Factory Mutual

FSD—Fire Safety Deficiency

HAZCOM—Hazard Communications

HAZMAT—Hazardous Materials

HDSC—Hazardous Distribution Supply Center

IAW—In Accordance With

ICAP—Interim Corrective Action Plan

IDLH—Immediately Dangerous to Life or Health

Kg—Kilogram

L—Liter

Lbs—Pounds

LED—Law Enforcement Desk

m—Meter

m2—Square Meter

m3—Cubic Meter

MAJCOM—Major Command

MAQ—Maximum Allowable Quantity

M-CAP-Mitigation-Corrective Action Plan

MIL-STD – Military Standard

NFPA—National Fire Protection Association

OPR—Office of Primary Responsibility

ORMs—Other Regulated Materials

OSHA—Occupational Safety and Health Administration

POL—Petroleum, Oil and Lubricants

psi—Pounds per Square Inch

RAFB—Robins Air Force Base

RAFBI—Robins Air Force Base Instruction

SCF—Standard Cubic Feet

SDS—Safety Data Sheet

TC—Transport Canada

T.O.—Technical Order

UFC—Unified Facilities Criteria

UL—Underwriters Laboratory

US—United States

USAF—United States Air Force

Terms

Classified Location—Locations shall be classified depending on the properties of the flammable gas, flammable liquid-produced vapor, combustible-liquid produced vapors, combustible dusts, or fibers/flying that may be present, and the likelihood that a flammable or combustible concentration or quantity is present. Each room, section, or area shall be considered individually in determining its classification. NFPA 70, *National Electrical Code.*

Class I, Division 1 locations:— (1) In which ignitable concentrations of flammable gases, flammable liquid produced vapors, or combustible liquid produced vapors can exist under normal operating conditions, or

Class I, Division 1 locations:— (2) In which ignitable concentrations of such flammable gases, flammable liquid produced vapors, or combustible liquids above their flash points may exist frequently because of repair or maintenance operations or because of leakage, or

Class I, Division 1 locations:— (3) In which breakdown or faulty operation of equipment or processes might release ignitable concentrations of flammable gases, flammable liquid produced vapors, or combustible liquid produced vapors and might also cause simultaneous failure of electrical equipment in such a way as to directly cause the electrical equipment to become a source of ignition. NFPA 70, *National Electrical Code*

Class I, Division 2 locations:— (1) In which volatile flammable gases, flammable liquid produced vapors, or combustible liquid produced vapors are handled, processed, or used, but in which the liquids, vapors, or gases will normally be confined within closed containers or closed systems from which they can escape

only in case of accidental rupture or breakdown of such containers or systems or in case of abnormal operation of equipment, or

Class I, Division 2 locations:— (2) In which ignitable concentrations of flammable gases, flammable liquid produced vapors, or combustible liquid produced vapors are normally prevented by positive mechanical ventilation and which might become hazardous through failure or abnormal operation of the ventilating equipment, or

Class I, Division 2 locations:— (3) That is adjacent to a Class I, Division 1 location, and to which ignitable concentrations of flammable gases, flammable liquid produced vapors, or combustible liquid produced vapors above their flash points might occasionally be communicated unless such communication is prevented by adequate positive pressure ventilation from a source of clean air and effective safeguards against ventilation failure are provided. NFPA 70, *National Electrical Code*

Exit—That portion of a means of egress that is separated from all other spaces of the building or structure by construction or equipment as required to provide a protected way of travel to the exit discharge. Exits include exterior exit doors, exit passageways, horizontal exits, and separated exits or ramps. For more detail consult the NFPA 101 *Life Safety Code 101*, NFPA 1, *Fire Code*.

Facility Manager—The designated person who signs a receipt for any facility under their jurisdiction. Each facility/building manager is responsible for the fire safe conditions of the facility and equipment under his or her control.

Fire Hazard—Any situation, process, material, or conditions that, on the basis of applicable data, may cause a fire or explosion or provide a ready fuel supply to augment the spread or intensity of the fire or explosion and that poses a threat to life or property.

Fire Safety Deficiency (FSD)—A condition which reduces fire safety below an acceptable level, including noncompliance with standards, but by itself cannot cause a fire to occur.

Functional Manager—The senior operating official at all levels exercising managerial control of an activity or operations. This individual usually can acquire and commit resources for the abatement of occupational safety and health hazards.

Fire Detection System—A system designated to detect the presence of fire or smoke. Building occupants are notified with visual and audible devices, and a signal may be sent to the base Fire Emergency Services. NFPA 72, *Fire Alarm Code,* UFC-Unified Facilities Criteria.

Fire Protection Engineering for Facilities 3—*600-01,* UFC, *Inspection, Testing, and Maintenance of Fire Protection Systems 3-600-02*.

Fire Door—A listed door installed in a building to separate sections or certain areas to prevent damage by heat or smoke in the event of a fire. Designed to meet the special criteria and certified by an appropriate testing organization. NFPA 80, *Fire Doors and Other Opening Protective.*

Fire Suppression System—A system designed to respond to the presence of fire and discharge extinguishing agent to control or extinguish the fire while sending a signal to the base Fire Emergency Services. NFPA 13, *Installation of Sprinkler Systems*, NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems,* UFC-Unified Facilities Criteria, *Fire*

Protection Engineering for Facilities 3-600-01, UFC, *Inspection, Testing, and Maintenance of Fire Protection Systems 3-600-02.*

Hazard Abatement—To eliminate or reduce a safety, fire, or health hazard.

NFPA—National Fire Protection Association, an independent and nonprofit organization whose mission is safeguarding the environment from fire using scientific and engineering techniques and education. Develops codes and standards that are used by the US Air Force.

Risk Assessment Code (RAC)—An expression of degree in risk in terms of hazard severity and mishap probability. Fire, Safety, or Bioenvironmental engineering personnel can assign RAC's.

AFI 91—202, *The US Air Force Mishap Prevention Program*

Attachment 2

ROBINS AIR FORCE BASE FIRE PREVENTION FACILITY MANAGER MONTHLY CHECKLIST

Figure A2.1. Robins Air Force Base Fire Prevention Facility Managers Monthly Checklist.

MANAGER'S NAME:		DATE:	
OFFICE /SYMBOL:		OCCUPANCY:	
FACILITY NUMBER:			
HAZARD	YES	NO	REMARKS
1. Are required emergency evacuation plans posted?			
2. Are exit signs lighted and in working condition?			
3. Are all exits and fire aisles clearly marked; clear of obstructions, and unlocked when the facility is occupied?			
4. Are extinguishers properly mounted, unobstructed and in serviceable condition?			
5. Are foyers, entrance halls and stairwells clear, and not being utilized for storage areas?			
6. Is trash being removed from the building daily?			
7. Are vehicles being parked at proper distances from buildings and not blocking hydrants or parking in fire lanes?			
8 Are unauthorized flammable liquids being used for cleaning purposes?			
9. Are flammable liquids identified and being stored properly?			
10. Are fire doors kept clear and in working condition?			
11. Are clothes dryer filters clean and vented properly?			
12. Are storage areas properly maintained?			
13. Are extension cords of the approved type and not being used as permanent wiring?			
14. Do power strips have surge protectors and being used properly?			
15. Are unnecessary electrical appliances and equipment turned off at the end of each day?			

16. Are lawn mowers and gas powered equipment stored properly?			
HAZARD	YES	NO	REMARKS
17. Is the clearance under sprinklers a minimum of 18 inches? Areas over 15 feet must have a clearance of 36 inches?			
18. Are all personnel in the facility trained in fire prevention practices? Are they familiar with proper fire reporting and building evacuation procedures?			
19. Is the overall housekeeping of the building good?			
20. Copies of AF Form 1487 and pertinent AF Forms 332 on file and have previous deficiencies been corrected?			
The checklist and necessary actions have been initiated to correct all deficiencies. Signature of Building/Facility Manager:_____Date_____			

Attachment 3

PUBLIC ASSEMBLY MANAGERS CLOSING CHECKLIST

A3.1. The following is a guide for the proper closing procedures of public assembly facilities and other buildings as determined by the Base Fire Emergency Services. If you have any questions, please contact the Fire Prevention section at DSN 468-2145.

Figure A3.1. PUBLIC ASSEMBLY MANAGERS CLOSING CHECKLIST.

Checked	Checklist Item
	When Hood & Duct exhaust fans are inoperative, cooking shall stop immediately until the exhaust fan is fully operational.
	All kitchen equipment switches are in off position.
	Installed grease filters and range hoods have been cleaned.
	Non-essential heating devices are in off position.
	Non-essential portable electric devices are in off position and unplugged.
	Smoking materials are disposed of in approved metal containers with self-closing lids.
	Trash receptacles are emptied into outside dumpsters.
	Soiled rags are removed from building or kept in a metal container with a self-closing cover.
	Painting supplies and other flammable materials are removed from building or properly stored in flammable cabinets.
	All unnecessary lighting is turned off.
	All exit doors are properly secured.
	Managers or their designated representative shall ensure proper closing procedures are performed.
	Inspections will be annotated in the facility manager's fire prevention folder.
DATE_____SIGNATURE_____	